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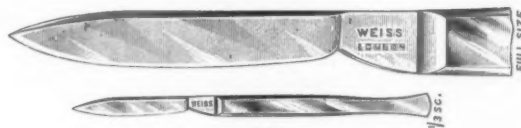
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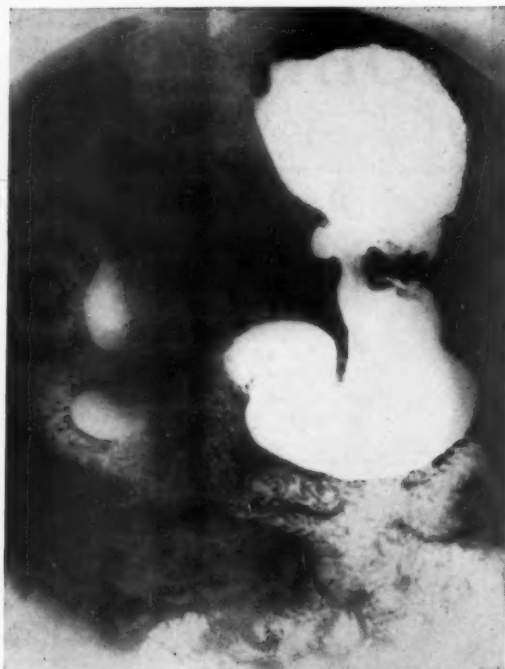
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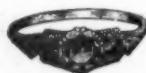
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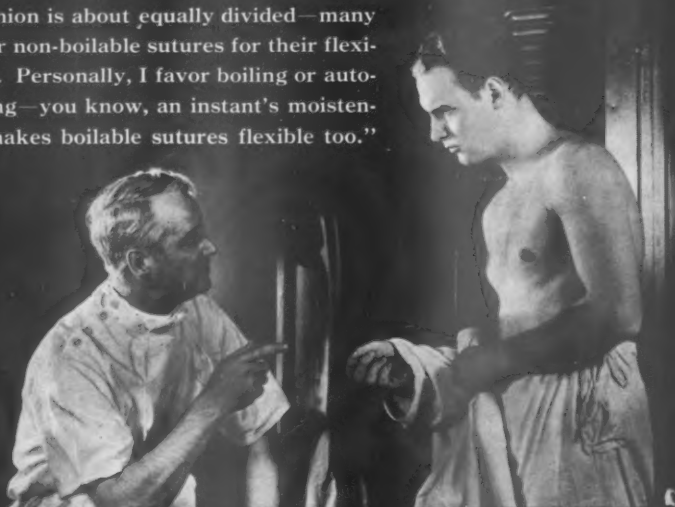
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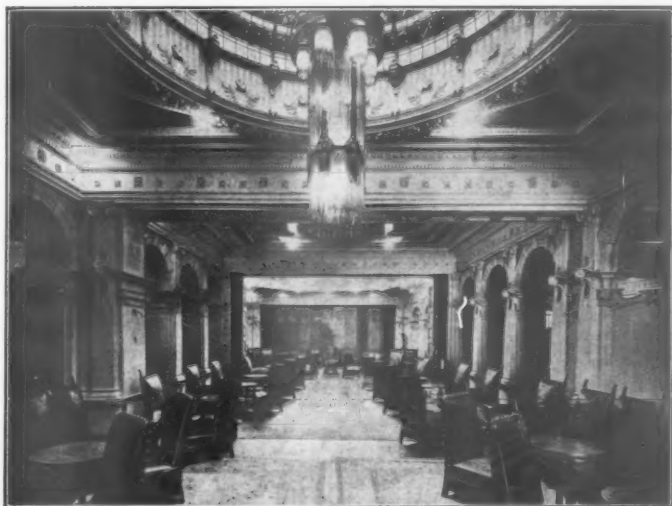


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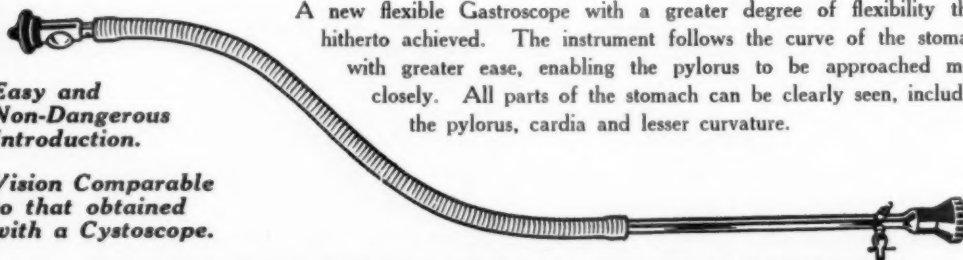
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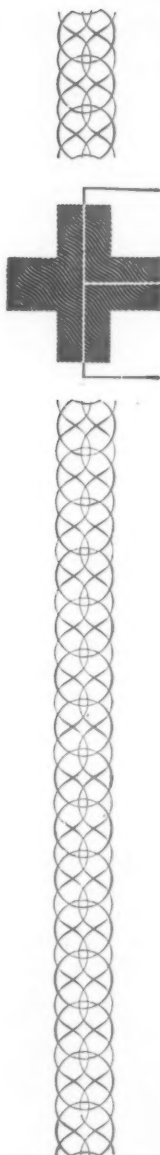
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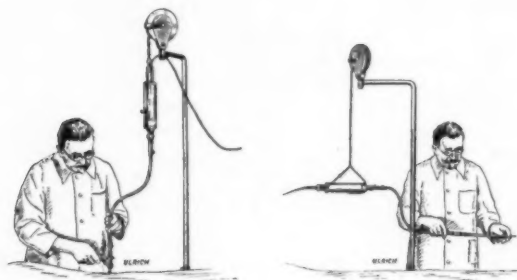
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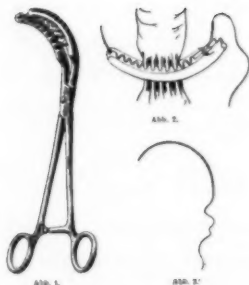
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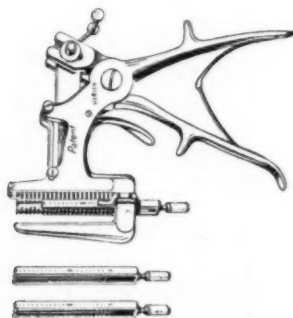
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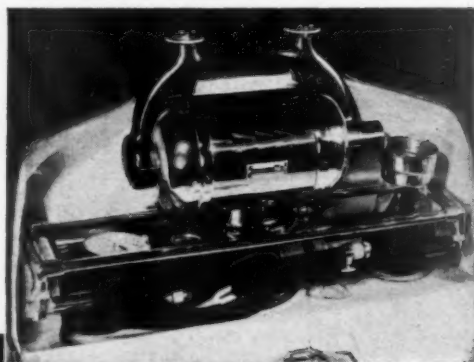
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The Australian and New Zealand Journal of Surgery

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No. 3.

THE CULTURED SURGEON.

By SIR D'ARCY POWER, K.B.E.,
London.

THE medical profession in England has always been divided into physicians, surgeons and family practitioners. The physicians, until the latter years of King Henry VIII, were usually, but by no means always, in orders. They were attached to the monasteries, and each king had one or more in his personal service.

The surgeons were itinerant. They learnt their business in the wars when wars were constant, and they were, therefore, rarely at home. Moreover, it was their custom, when they operated, to stay in the patient's house until he was either cured or had died—sometimes a matter of months, sometimes only of days.

The family practitioners were numerous in the larger towns, and were to be found occasionally in the villages. They looked after the ordinary complaints of the inhabitants, and, being stationary and good men of business, they often made considerable fortunes and held such high civic offices as mayor, sheriff and aldermen.

All, however, were under control. The physician could be called back to his convent just when he thought himself most secure. The surgeon was a member of the small body known as the Guild of Surgeons. The family practitioners, from quite early times, had banded themselves into the Fraternity of Barbers, which became the Barbers' Company, and, by incorporation with the Surgeons' Guild, the United Company of Barbers and Surgeons.

Culture, as we now know it, varied greatly in the three grades. The physician was a man learned in theory, well read in the classics of his profession, but of little practical knowledge; a great gentleman, looked up to and respected by those with whom he was brought into

relation; often a politician, sometimes an intriguer, and on many occasions a go-between at the various courts of Europe.

No general practitioners are known to us as learned men or as great gentlemen before the Reformation in England. No doubt they existed, but they wrote no books, and none of their contemporaries thought it worth while to hand down any details about them. The care of their numerous patients, the troubles with their apprentices, the lectures they had to attend compulsorily, their domestic duties and civic appointments must have given them very little time to read or even to think outside their immediate spheres of action.

The surgeons had a wider outlook on life. From 1300 to 1600 all had seen service in the field, and must have known Poland, France, Spain, Germany and the Low Countries as well as they knew England. They had mixed with every class, they had been in command, and were accustomed to be obeyed. They loved to write of their experiences and to tell of the patients they had treated. We know more about them and their methods and manner of thought than we do of the physicians and family practitioners who were their contemporaries. Ardenne, Morested, Gale, Clowes and Woodall are still living persons for us. Rough as their lives were, they all seem to have had some tincture of letters, they wrote good English and often prided themselves on their verse. They knew each other, for they were few in number, and, as they were not jealous, they praised each other and wrote introductions to their books, the one for another. For the most part, they were wealthy, for in Tudor times they were paid in kind rather than in cash. A successful operation would be rewarded with a grant of land or, in war-time, with a chain of gold, a ring, or a cask of wine, each of which could be turned to good account. In earlier days loot or the fortunate capture of a knight who could be held to ransom was an easy and pleasant way of filling one's coffers. John Ardenne (1307 to 1380), who served in France and Spain in the Hundred Years War and afterwards settled at Nottingham, says of his fees:

Be he wary of asking too little, for asking too little sets at nought both the market and the thing. Therefore, for the case of fistula in ano, when it is curable, ask he competently of a worthy man and a great, an hundred mark or forty pound with robes and fees of an hundred shillings yearly so long as he lives. For never in all my life took I less than an hundred shillings for the cure of that illness. Nevertheless, let another man do as he thinks better.

It may be noted that when Ardenne wrote, shortly after the Black Death, the daily wage of a labourer was one penny.

The surgeons showed themselves as masters of English during the fifty years which closed with the year 1600. Thomas Gale (1507 to 1587), who had served in the wars and who was in many ways rough and unpolished, began his "Institution of a Surgeon" with a charming passage:

Phœbus, who chaseth away the dark and uncomfortable night, casting his golden beams in my face, would not suffer me to take any longer sleep, but

said: Awake, for shame and behold the handiwork of our sister Flora, how she hath revested the earth with most beautiful colours marvellously set in trees, plants, herbs and flowers: insomuch that the old and withered coat of winter is quite done away and put out of remembrance: at which words of Phœbus my heart quickened in me and all desire of sleep was eftsoon forgotten. Wherefore I am now come into this beautiful meadow to recreate myself and gather some of these pleasant herbs and flowers which here do grow.

Pleasant words and beautiful ideals, but a strange introduction to a textbook on surgery. His prose was better than his verse. He wrote:

Go forth, my painful book,
Thou art no longer mine.
Each man may on thee look;
The shame or praise is thine.

William Clowes (1540 to 1604), his contemporary, was cast in rougher mould, but his works breathe the newly found spirit of patriotism, for he wrote when England had just become a nation. He hated quacks, and much of his life was spent in an attempt to destroy them. Writing against them, he always speaks out. Here is an example:

Where the learned physician or surgeon cannot be had for council, I am herein to admonish the friendly reader to take heed not to commit themselves unto the hands of every blind Buzzard that will take upon them to let blood, yea, to the utter undoing of a number. For many in these days being no better than runagates or vagabonds do extraordinarily, yea disorderly and unadvisedly intrude themselves into other men's professions, that is to say, not only in letting of blood, but also do take upon them to intermeddle and practise in this art wherein they were never trained or had any experience; of which a great number be shameless in countenance, lewd in disposition, brutish in judgement and understanding. This beastly brood doth forsake their honest trades, whereunto God hath called them, and do daily rush into Physick and Chirurgerie. And some of them be Painters, some Glasiers, some Tailors, some Weavers, some Joiners, some Cutlers, some Cooks, some Bakers, and some Chandlers, etc. Yea, nowadays, it is apparent to see how Tinkers, Tooth-drawers, Pedlers, Ostlers, Carters, Porters, Horse-gelders, and Horse-teachers, Idiots, Apple-Squires, Broom-men, Gawds, Witches, Conjurers, Sooth-sayers, and Sow-gelders, Rogues, Rat-catchers, Runagates and Proctors of spittle houses with such like rotten and stinking weeds, do in town and country without order, honesty or skill daily abuse both Physick and Chirurgerie, having no more reason or knowledge than hath a goose; but a certain blind practice without wisdom or judgement and most commonly useth one remedy for all diseases and one curing all persons, both old and young, men, women and children, which is as impossible to be performed or to be true as for a shoemaker with one last to make a shoe fit for every man's foot, and this is one principal cause that so many perish.

With such a command of language, it is not surprising that Clowes fell foul of his colleagues, and there is a significant entry in the minutes of the Barber Surgeons' Company under the date March 25, 1577:

There was a great contention and strife spoken of and ended between George Baker and William Clowes, for that they both contrary to order and the good and wholesome rules of this house misused each other and fought in the fields together, but the Master and Wardens, wishing that they might be and continue loving brothers, pardoned their great offence in hope of amendment.

It must have been a glorious sight to see the King's Serjeant Surgeon and the Surgeon to Saint Bartholomew's Hospital pummelling each other in the fields, for one may be sure it was a fight with fists and not a

duel with swords. Yet both were men of culture according to the standard of their times.

John Hall (1529 to 1568), a contemporary surgeon, who practised at Maidstone in Kent, was also a cultivated man. He spent much of his short life in chastising quacks and trying to improve the morals of his contemporaries. Here is a sample of his "Sonnet inveighing against the abuses and pride that reigneth among vain women":

Ye women and maidens of City and Country,
Leave your lewd lightness, learn some honesty.
If one of you the truth will regard,
Speak with simplicity, let it be heard.


Some wear a chain and some a black lace;
And colours also to paint with their face,
Wherewith they do make their faces to shine.
Since God made the world such pride was ne'er seen.

The attack runs to fifty stanzas of four lines each, and remains in manuscript in the Bodleian Library at Oxford. It shows that John Hall was a Puritan, and that the women of his day were not unlike those of the present generation.

Cultivated surgeons, even of this rough type, died with Queen Elizabeth, and for more than fifty years Richard Wiseman (1622 to 1676) was the only surgeon with any pretension to being a gentleman. His culture, perhaps, can be attributed to the tuberculosis which killed him. It widened his sympathies, limited his power of work, and so gave him time to think and write. After him came a still longer eclipse. William Cheselden (1688 to 1752), Percivall Pott (1714 to 1788) and John Hunter (1728 to 1793) did much for surgery, and were greatly esteemed by their contemporaries. They lived their lives as good, honest men, rough and uncultivated, without much education and quite unable to take their places amongst the witty and in the literary circles as did Mead and Arbuthnot. Charles Bernard (1650 to 1711) was perhaps the single exception. He was a friend of Swift, pointed out that cancer reappeared after operation, and collected a very fine library.

The cultivated surgeon, as we judge him by modern standards, began with Sir Benjamin Brodie (1783 to 1862). The son of a clergyman, he had a good general education, was surgeon to Saint George's Hospital, and had such wide interests that he was elected President of the Royal Society. There has been no lack of similar surgeons since his day. Sir Henry Thompson (artist as well as lithotomist), Sir Seymour Haden (etcher and surgeon), Sir James Paget, Sir Jonathan Hutchinson and Lord Lister were all courtly gentlemen of the best type. Their successors follow in ever-increasing numbers. The reason is not far to seek. Anæsthesia deprived the practice of surgery of much of its horror. Surgeons of long experience dreaded an operation. Cheselden said it "took much out of him"; it made Abernethy vomit; John Flint South prepared himself by prayer. Men of better education entered surgery after the

advent of anæsthesia, but, like their predecessors, they still had but little leisure to cultivate their own minds. The surgeon, for at least a generation, was called to the patient, for travelling was bad and operations were still done at home. The hospitals were unsuited for those who could pay, there were no nursing homes, and the wives, daughters and "born nurses" did what was needed after an operation. The growth of specialism, improved transport, the introduction of paywards and, above all, the provision of trained nurses, have greatly lightened the surgeon's work. He has gained time to think about his own needs, mental as well as physical, and there is thus emerging a type of cultured surgeon which used to be rare, but which is now becoming common.



THE SURGICAL TREATMENT OF BRONCHIECTASIS.

By M. P. SUSMAN,
Sydney.

PREAMBLE.

REMOVAL or destruction of the diseased area of lung is the only absolute cure of established bronchiectasis, but it does not follow that every patient requires such radical treatment, even were he fit to stand it. Symptomatic and non-operative measures may suffice when the bronchiectasis is not progressive, especially if infection of the nasal sinuses is adequately treated; such a patient can be kept tolerably well and happy, even though the dilatations persist, as shown by bronchograms. If the bronchiectasis is early and uncomplicated, that is, if there has been no spread of the infection to the surrounding lung parenchyma, it is possible, according to some observers, that complete resolution may occur. That there may be objective as well as subjective improvement, even with an apparently advanced bronchiectasis, is shown by the two bronchograms of Case I, taken respectively in January, 1934, and April, 1936.

CASE I. This patient has had little inconvenience beyond cough and sputum, and the daily amount of sputum is less than it was two years ago, being now about one ounce. He has had no treatment except postural drainage, creosote and vaccine.

Our objective is to prevent bronchiectasis from developing, or, if it does develop, to check it at an early stage, so that operation will not be necessary.

Prophylaxis comprises: (a) careful management of children with the infectious fevers, especially if bronchopneumonia or other lung complication occurs; (b) prompt removal of foreign bodies from the tracheo-bronchial tree; (c) dilatation of bronchial stenosis; (d) adequate drainage of acute lung abscess and empyema before fibrosis of the lung and pleura has occurred; (e) treatment of infection of the nasal sinuses; (f) thorough investigation, and not simply symptomatic treatment, of such significant symptoms as hæmoptysis, persistent cough *et cetera*; (g) timely phrenic paralysis or thoracoplasty for post-inflammatory fibrosis of the lung or atelectasis.

Lipiodol injection of the bronchial tree offers the only sure means of completing the diagnosis, but it is not infallible. Certain factors may hinder proper filling; for example, bronchial stenosis or faulty technique of the injection.



FIGURE I. Case I (Bertram W.). Bronchogram of January, 1934.



FIGURE II. Case I (Bertram W.). Bronchogram of April, 1936.

Spontaneous remissions occur in the course of bronchiectasis for which various forms of treatment may wrongly receive credit. Case I, just cited, is probably an example of this event.

Non-operative treatment is a necessary preliminary to surgical treatment, especially a period of rest in bed, postural drainage, inhalations, and intravenous injections of emetine or of an arsenical compound and, perhaps, an autogenous vaccine.

The operations for bronchiectasis may be conveniently grouped under three headings: (a) extirpation of the diseased area; (b) compression and relaxation of the lung; (c) drainage of the dilatations and cavities.

There are different radiological-anatomical types of bronchiectasis, such as tubular, fusiform and saccular, and different aetiological types, such as congenital, atelectatic and post-infective. But the important considerations for treatment and prognosis are: (a) whether the bronchiectasis is dry (simple or non-septic) or moist (septic or fætid, according to the degree of sepsis); (b) whether it is confined to one lobe only or is more widespread. The more septic and the more widespread the disease, the worse the prognosis with every form of treatment.

SURGICAL TREATMENT OF ESTABLISHED BRONCHIECTASIS.

The different forms of surgical treatment of established bronchiectasis may be set out as follows:

1. Extirpation of the diseased area of lung:
 - (a) Lobectomy or total pneumonectomy, preferably at one stage.
 - (b) Cautey excision, piecemeal and in stages, of as much diseased lung as possible.
2. Compression and relaxation of the lung:
 - (a) Thoracoplasty.
 - (b) Extrapleural plombage.
 - (c) Phrenic nerve paralysis.
 - (d) Artificial pneumothorax and oleothorax.
3. Drainage:
 - (a) Bronchoscopic aspiration, with or without lavage.
 - (b) External drainage (pneumotomy).

My experience has been confined mainly to lobectomy, thoracoplasty and bronchoscopic drainage. This paper is based on twenty-eight lobectomies and four thoracoplasties at which I was the assistant at Brompton Hospital, and on two lobectomies, one pneumotomy, one thoracoplasty and about a hundred bronchoscopies personally performed.

Extirpation of the Diseased Area of Lung.

One-Stage Lobectomy and Total Pneumonectomy. With minor modifications, the technique for lobectomy and for pneumonectomy is the same. The operation has recently been described in detail by Tudor

Edwards and Price Thomas, J. E. R. Roberts, and H. P. Nelson and Robert Janes, so that I shall here discuss only some of the most important points of the operation and of the pre-operative and post-operative management. The general indication for lobectomy is progressive bronchiectasis confined to one lobe, or to the lower and middle lobes on the right side. The general indication for total pneumonectomy is moderately advanced bronchiectasis of the whole or of most of one lung which is not hopelessly adherent to the chest wall in a patient who is still well enough to make the risk of the operation justifiable. (For unilateral bronchiectasis that is early and uncomplicated thoracoplasty is preferable; for unilateral bronchiectasis that is very advanced and complicated cautery excision is the best operation.)

Pre-operative preparation for one-stage lobectomy or pneumonectomy includes bronchoscopic and postural drainage, attention to the teeth, nose and sinuses, the induction if possible of artificial pneumothorax, and the usual treatment for any major operation. The anaesthetic is either "Percaïne" or an allied drug given spinally, or gas and oxygen or cyclopropane given through an intratracheal tube, preceded by suitable hypnotics.

The patient lies with the diseased side upwards. The incision is over the seventh intercostal space (for disease of the lower lobe) and extends from the mid-axillary line to the edge of the sacro-spinalis muscle dividing the trapezius and *latissimus dorsi*.

Cut the seventh rib near its angle, divide the intercostal bundle between ligatures at the same spot and open the pleural cavity throughout the length of the exposed intercostal space.

Separate the edges of the wound with special rib spreaders; then divide and, if necessary ligate any intrapleural adhesions. After thus isolating the lower lobe, clamp, cut and ligate the lateral pulmonary ligament. Now pass the lung tourniquet around the hilum and tighten it. Protect the wound edges and the pleural cavity with gauze and pads, or bring the lobe out through a hole in a sheet of rubber dam which is spread over the surrounding parts.

Cut through the hilum about 18 millimetres (three-quarters of an inch) from the tourniquet. A continuous suture, or a series of interrupted mattress sutures, of chromicized gut closes the bronchi and vessels as if the stump were a homogeneous structure. Now loosen the tourniquet, stop any bleeding with additional sutures and unite the remnants of lung tissue and the visceral pleura of the stump by a continuous suture, so as to cover the deep sutures.

Dry the pleural cavity, insert a drainage tube through the intercostal space below the operation wound and close the operation wound in layers, reinforcing it with a series of pericostal sutures (sutures embracing the rib above and the rib below the incision).

Clamp the intercostal drainage tube and remove as much air as possible from the pleural cavity while the anaesthetist gently raises the pressure in the trachea to promote reexpansion of the lung. As soon as

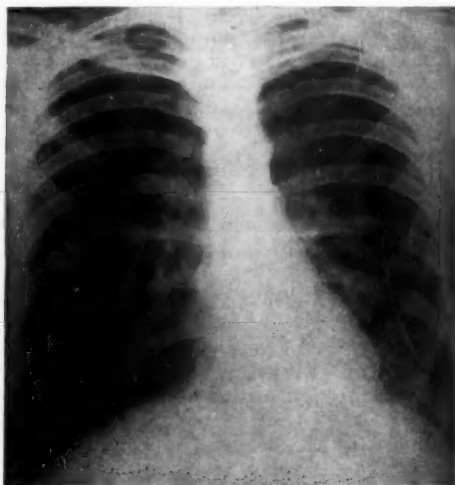


FIGURE III. Case II (William M.). Plain radiogram.

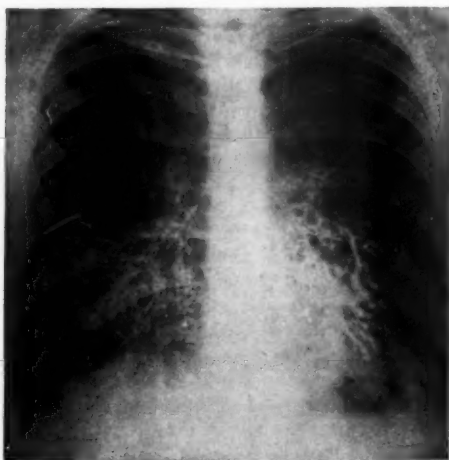


FIGURE IV. Case II (William M.). Bronchogram showing bronchiectasis.

the patient is back in bed, connect the intercostal tube (before unclamping it) to another tube which passes into a vessel of fluid at the bedside, and then remove some of the air from this vessel so as to maintain a negative pressure. It is essential to keep the drainage system airtight, as the remaining lung tissue must be encouraged to fill the pleural cavity as soon as possible; in this way any post-operative pleural infection will be localized.

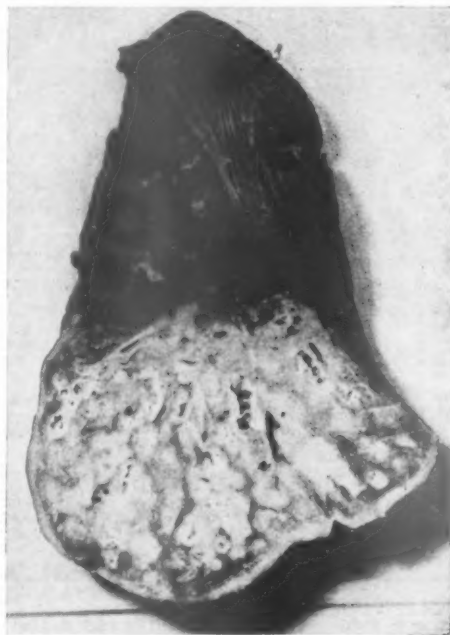


FIGURE V. Case II (William M.). The left lower lobe cut longitudinally.

It may be necessary to aspirate fluid or air from the pleural cavity on one or more occasions during the first few days after the operation.

A bronchial fistula usually forms about the tenth day, and with few exceptions it eventually closes spontaneously; as a rule, it causes only a small localized empyema which is easily drained either through the original drainage wound or by a later rib resection. But if the rest of the lung has failed to expand and to adhere to the chest wall, a total pyothorax results—a most serious complication which must be treated heroically by reopening the whole wound and packing the hemi-

thorax with gauze; if the patient is fortunate enough to survive, he will almost certainly need a thoracoplasty to close the residual cavity.

The main post-operative complications, in addition to bronchial fistula and empyema, are: (a) shock, hæmorrhage, air embolism; (b) wound infection, mediastinitis, pulmonary infection, suppurative pericarditis, septicæmia and pyæmia; (c) cardiac and respiratory failure.

Our chief post-operative aids are blood transfusion and the oxygen tent.

Mr. Tudor Edwards has given me the following figures from the Brompton Hospital. Up till the end of 1935 the total number of

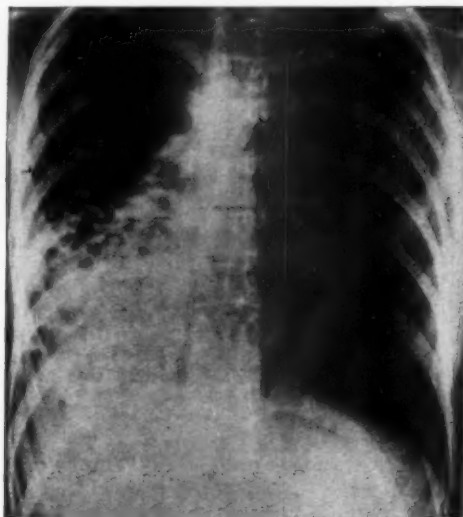


FIGURE VI. Case III (Gladys P.). Plain radiogram. (This picture has been reversed in the printing of the film.)

lobectomies for bronchiectasis was one hundred and seven, with fifteen deaths. There have been three total pneumonectomies, and all the patients recovered; the patients were boys aged, respectively, five, seven and ten years. (The records of these three patients are in *The Proceedings of the Royal Society of Medicine*, January, 1936.)

CASE II. William M., aged eighteen years, had had a productive cough ever since he could remember. As a child he had measles, whooping cough and chicken pox. In the previous five years cough and sputum had increased, he had had frequent "colds", and he always felt tired and out of sorts. The daily amount of sputum was about 120 cubic centimetres (four ounces), and it was sometimes offensive. He had obvious clubbing of the fingers. Investigations showed that he had left basal bronchiectasis, and I removed the lower lobe of the left lung under gas and oxygen anaesthesia ten days after the induction of

an almost complete pneumothorax. He bore the operation well, and the upper lobe reexpanded to fill the hemithorax within twenty hours; no air or fluid had to be aspirated from the pleural cavity at any time.

Now, six months after the operation, he is much improved, but he still has some sputum which, on bronchoscopic examination, can be seen to come from the depths of the left bronchus. Bronchograms show some dilations near the hilum. Several bronchoscopic aspirations have diminished the amount of sputum, and his general condition remains satisfactory.



FIGURE VII. Case III (Gladys P.). Bronchogram showing saccular bronchiectasis.

CASE III. Gladys P., aged twenty years, was a patient of Mr. Tudor Edwards at the Brompton Hospital, and I am indebted to him for permission to cite her record. The point of particular interest was the finding of a tuberculous cavity in the midst of the grossly bronchiectatic left lower lobe, which was difficult to remove on account of the dense adhesions binding it to the diaphragm and mediastinum. This patient was a bad surgical risk, as she had severe constitutional evidence of toxæmia, and she was one of the 15% of the Brompton Hospital series who died after operation. No tubercle bacilli were ever found in the sputum.

Cautery Excision of the Lung. Evarts Graham recommends cautery excision of the lung (under the name of cautery pneumonectomy) for patients with unilateral bronchiectasis whose condition has not improved

with other forms of treatment, and who are unfit or unsuitable for thoracoplasty or the classical lobectomy or pneumonectomy. It is especially useful for bronchiectasis with secondary multiple abscesses, or for chronic lung abscess with secondary bronchiectasis; for these types of bronchiectasis thoracoplasty gives less satisfactory results and has a higher mortality, and lobectomy or pneumonectomy is usually impossible because the adhesions are too dense and/or the patient is too ill to stand the manipulations that their separation would require.



FIGURE VIII. Case III (Gladys P.). The left lower lobe showing advanced bronchiectasis and a tuberculous cavity.

An associated empyema or broncho-pleural or broncho-cutaneous fistula does not increase the operative risk of cauterly pneumonectomy. The advantages of this operation are that it can be performed in stages which can be spaced to suit each individual patient, that its mortality is not prohibitive, and that it combines some of the objectives of the other operations, namely, extirpation, compression and drainage.

The first essential for the operation of cauterly pneumonectomy is that the lung should be adherent to the parietes. If this adhesion is not already present, the first stage of the operation consists of resecting two or more ribs and the intercostal structures over the diseased area, placing an iodine gauze pack against the extrapleural tissues and suturing the

muscles and skin over the pack. Adhesions generally form within ten or fourteen days, and then the patient is ready for the second stage, namely, reopening of the wound, removal of the pack, and cauterization of the adherent lung, so that a number of bronchial fistulæ are deliberately made over a wide area; there is no need to go deeply once the dilated bronchi and the associated abscesses are truly laid open. The cauterization is repeated in three weeks; it should not be done any earlier, as it takes this time for the sloughs to separate fully. The raw surface of the lung is compressed by filling the whole cavity with packing; this is enough to check the primary hæmorrhage, and the risk of secondary hæmorrhage is less than one would think. One should not be perturbed by the temporary apnœa that often follows the application of the cautery, but cerebral embolism is a very frightening disaster; I have seen it happen once during the opening of a lung abscess. Preliminary ligation of the pulmonary veins has been recommended to prevent it, but a simpler prophylactic measure is to keep the patient's head at a lower level than his chest during the operation. Smoke and blood may issue from the nose and mouth, and the patient should be warned about this if he is having only a local anæsthetic, as he is likely to be upset by such a strange happening.

Some patients get sound healing with spontaneous closure of the bronchial fistulæ; others need a thoracoplasty to close the fistulæ, but this must not be done until one is sure that there has been adequate drainage, which usually requires several months; a few patients have so little inconvenience from persistent fistulæ that they refuse further operation.

Graham has recorded seventy-six cautery pneumonectomies; of the patients, 15% died and 70% obtained a symptomatic cure. Tudor Edwards, with a much smaller series, has had disappointing results.

Compression and Relaxation of the Lung.

The grave disadvantage of all the procedures which depend on compression and relaxation is that the patient is still left with the diseased lung.

Thoracoplasty. Thoracoplasty should be reserved for patients with one healthy lung and uncomplicated bronchiectasis of the whole or of most of the other lung.

Thoracoplasty should not be done when the bronchiectasis is confined to one lobe only; if lobectomy is not possible or advisable, cautery excision is the best operation. Nor, as noted above, should thoracoplasty be done for unilateral bronchiectasis that is complicated by parenchymal abscesses and grave constitutional upset; here again cautery excision is the best. If the bronchiectasis is moderately advanced and the patient's general condition is satisfactory, total pneumonectomy is preferable.

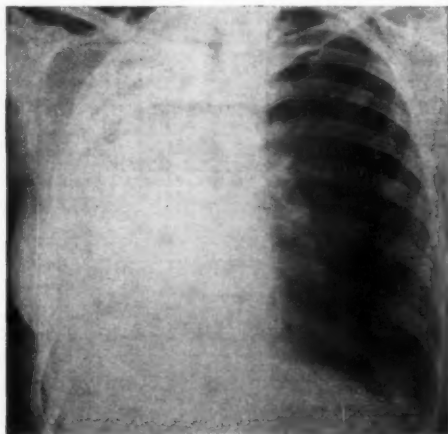


FIGURE IX. Case IV (Avice P.). Plain radiogram.
Note the deviation of the mediastinum to the right.
The left lung appears normal.



FIGURE X. Case IV (Avice P.). Bronchogram
showing unilateral bronchiectasis.

Thoracoplasty for unilateral bronchiectasis must be extensive (ribs one to ten), and it should be done in three or more stages and supplemented by phrenic paralysis.

One can rarely claim a cure with thoracoplasty, for the patient has usually some residual sputum, and bronchograms show that the bronchial dilatations have not been completely obliterated.

CASE IV. Avice P., aged twenty-five years, had had an acute pulmonary infection seventeen years previously, and had never been really well since. Eight years later an abscess pointed close to the right side of the sternum and this



FIGURE XI. Case IV (Avice P.). The whole right lung split longitudinally. There is less bronchial dilatation than the bronchogram suggested; there are no parenchymal abscesses; in fact, most of the lung is replaced by fibrous tissue. (From Sydney Hospital Pathological Department.)

healed after being opened and drained. She presented herself with a chronic cough and foul sputum, a muddy complexion and extreme clubbing of the fingers. Examination revealed fibrosis of the whole of the right lung, with deviation of the mediastinum to the right and bronchiectatic dilatations in all zones. No tubercle bacilli were ever found in the sputum.

In view of the excessive fibrosis I advised thoracoplasty (to be done in three stages), although she was obviously a bad operative risk. After a course of postural drainage and general treatment I did an upper four-rib thoracoplasty under gas and oxygen anaesthesia. She recovered well from this operation, and three weeks later I did the second stage (ribs 5, 6 and 7). This stage was much easier and shorter than the first, and the prognosis seemed reasonably good, but she did not stand it well, and she died suddenly the same day. At autopsy the lung was found to be densely adherent, and it was removed only with great difficulty. There was no normal lung tissue, but there were gross inflammatory

changes and parts of the bronchial cartilages were osseous. The parietal pleura was not notably thickened. The left lung had several areas of infarction. The remaining organs were essentially normal.

Cautery pneumonectomy might have been better than thoracoplasty for this patient, although the gross specimen showed little suppurative changes in the lung parenchyma, which had been largely replaced by fibrous tissue.

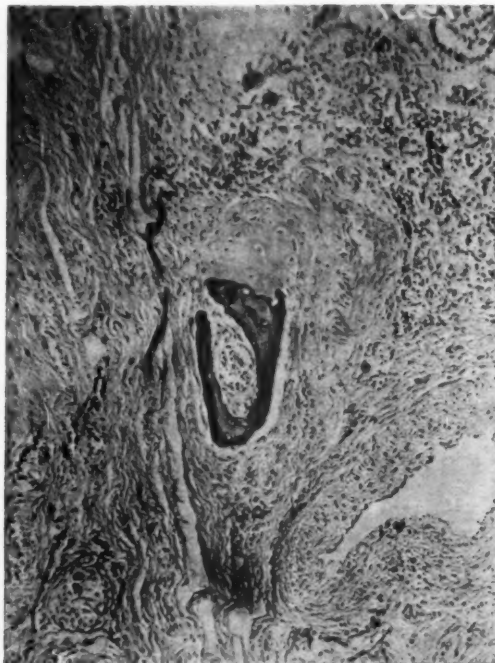


FIGURE XIA. Case IV (Avice P.). Note the replacement of lung parenchyma by inflammatory and fibrous tissue and partial ossification of the bronchial cartilage. (From Sydney Hospital Pathological Department.)

Extrapleural Plombage. Extrapleural plombage is suitable only for disease confined to the upper lobe, so that there is very little scope for it, as bronchiectasis of the upper lobe alone is rare. It is essential that the two layers of pleura should be adherent.

The operation consists of the separation of the upper lobe with the adherent pleural layers from the chest wall. Access is obtained by resection of an inch of the third rib between the vertebral border of

the scapula and the edge of the erector muscle, and the extrapleural space is packed with a special paraffin wax or with a piece of fat or lipoma.

I have had no personal experience of this operation for bronchiectasis.

Phrenic Nerve Paralysis. The chief uses of phrenic paralysis in bronchiectasis are: (i) to stop recurrent hæmoptysis, (ii) to supplement thoracoplasty or artificial pneumothorax, (iii) to close a residual empyema and/or a persistent bronchial fistula after lobectomy or pneumonectomy, (iv) to prevent bronchiectasis developing after drainage of a basal lung abscess or after post-inflammatory fibrosis.

For established bronchiectasis the end results of phrenic paralysis are disappointing; any improvement is, as a rule, only temporary, and bronchograms show that the dilatations are still present. Furthermore, if you now decide to perform lobectomy, it is a disadvantage to have a paralysed diaphragm, as expansion of the remaining lung tissue is greatly aided by the normal diaphragmatic movements. Except for the four indications given above, paralysis of the phrenic nerve plays but a small rôle in the treatment of bronchiectasis; there is a real danger, however, that the operation may be performed indiscriminately because of its simplicity. This is deplorable, negatively because it may lead to the postponement of more efficient measures, positively because it may have serious results; for example, if there has not been thorough pre-operative drainage by posture or bronchoscopic aspiration, the sudden rise of the diaphragm may cause flooding of the rest of the lung. This operation requires as much judgement and selection as the more dramatic major operations, but I fear that it may become a cult for surgical sluggards and a refuge for unimaginative physicians.

Artificial Pneumothorax and Oleothorax. Artificial pneumothorax is a desirable preliminary to the operation of lobectomy or pneumonectomy. It is also a form of treatment used alone, but it is rarely a great success. If, however, good collapse can be obtained while the bronchiectasis is still early, complete resolution may occur, the bronchial dilatations disappearing synchronously with the symptoms. But, as a rule, although there may be symptomatic improvement, the bronchial dilatations persist, and the patient is benefited only as long as the pneumothorax can be maintained; as the lung reexpands, symptoms return. Oil may prevent this reexpansion when air fails to do so, but oleothorax should only succeed a thorough trial of pneumothorax. The disadvantage of both pneumothorax and oleothorax is that unless one or other can be maintained indefinitely, the parietal and visceral pleurae become thickened and adherent, and a later attempt to cure the patient by lobectomy or pneumonectomy may thus become more difficult and dangerous, or impossible; then we may have to resort to the less satisfactory operations of cauterly excision or thoracoplasty or repeated bronchoscopic aspirations.



FIGURE XII. Case V (James W.). Bronchogram (postero-anterior) showing bilateral bronchiectasis. (This picture has been reversed in the printing of the film.)



FIGURE XIII. Case V (James W.). Oblique view of same patient as in Figure XII.

Drainage.

Bronchoscopic Aspiration. Bronchoscopy may show that a neoplasm or an unsuspected foreign body is the cause of the bronchiectasis. Removal of a foreign body or of an innocent neoplasm before the bronchiectasis is well established may be the only treatment necessary for cure.

Bronchoscopic aspiration, with or without instillation of some antiseptic, undoubtedly improves the condition of most patients. If the bronchiectasis is not very severe, periodical bronchoscopic aspiration may keep the patient comfortable and prevent the disease from progressing. Even when the disease is more advanced, considerable clinical improvement usually occurs in that the general condition waxes



FIGURE XIV. Case VI (Alma B.). Anteroposterior bronchogram. Advanced bilateral bronchiectasis.

well, cough and sputum diminish and fœtor decreases. I have several patients with bilateral bronchiectasis who gladly submit to a periodical bronchoscopy with little discomfort and appreciable benefit. It is supplemented by postural treatment at home. I have combined the aspiration with lavage with different antiseptics, but I am not sure that this is of any value. As noted above, bronchoscopic aspiration is a useful preliminary to any of the cutting operations.

There is no mystery or intrinsic difficulty about making a bronchoscopic examination under local anaesthesia, and I go out of my way to urge that the physician or surgeon in charge of the patient should do it himself and not be dependent upon a colleague whose interests are largely centred upon the upper respiratory tract and the auditory apparatus. Only thus can he maintain that close personal contact that is so necessary for a patient with a chronic malady like bronchiectasis, and only thus can he study the "living pathology" of the disease and see for himself the effects of the treatment.

CASE V. James W., aged fifty-three years, had been subject to frequent coughs and colds for over twenty years; at times he was febrile and confined to bed, but he usually recovered fairly quickly. He had had several attacks of



FIGURE XV. Case VI (Alma B.). Lateral view of same patient as in Figure XIV.

dry pleurisy and one attack of hæmoptysis. Between attacks he was tolerably well and physical signs were scanty, but he had a chronic cough and some sputum, which was sometimes offensive; the daily amount of sputum varied from a trace to 60 cubic centimetres (two ounces). Bronchograms show an obvious bilateral bronchiectasis.

This man has improved with periodical bronchoscopic aspirations supplemented by postural treatment at home. He now has fewer febrile attacks than before, the sputum is less purulent and less offensive, and his appetite and weight have both increased.

CASE VI. Alma B., aged thirty-five years, had had nasal and sinus trouble for fifteen years. Seven years previously she had had pneumonia, and since

then she had had a chronic cough and sputum, varying at first from 30 to 240 cubic centimetres (one to eight ounces) a day, but lately increasing to 540 cubic centimetres (eighteen ounces) or more. Recently she had had "asthmatic" attacks. The sputum was now offensive, the fingers were clubbed, and there were grave constitutional effects, including weakness, tachycardia, dyspnoea and bouts of fever. Signs of cavitation were present at both bases, and bronchograms showed bilateral basal saccular bronchiectasis. We tried the effect of deep radiation, but she was unable to stand more than four treatments. Since then she has had a series of bronchoscopic aspirations from which she has had some benefit, but her general condition remains poor and the ultimate outlook is hopeless.

Why did the disease advance so devastatingly in this patient while in others it remains almost stationary?¹



FIGURE XVI. Case VII (William G.). Advanced bronchiectasis of left lung. The heart shadow obscures many of the dilatations that appear in the lateral view (Figure XVII). The complicating empyema has already been drained. (This picture has been reversed in the printing of the film.)

Pneumotomy (External Drainage). Open drainage for bronchiectasis does good only if there is also a large abscess or area of gangrene, or if there is a localized group of bronchiectatic dilatations which can be easily thrown into one cavity. But the usual types of bronchiectasis cannot be adequately drained by simple pneumotomy, and the other procedures discussed above have generally supplanted it. I combined pneumotomy and thoracoplasty with advantage in Case VII.

¹ This patient has since died. There was not the gross cavitation of the lungs that the physical signs and bronchograms made one anticipate, but both lungs were like saturated spongy rubber, and pus exuded from many points on pressure. There was surprisingly little toxic spoiling of the viscera.

CASE VII. William G., aged twenty-two years (a patient of Dr. A. Holmes & Court), had had frequent respiratory infections, the last of which was complicated by an empyema on the left side, which pointed on the antero-lateral part of the chest wall and burst through spontaneously. When I first saw him he had two discharging sinuses, dulness and weak breath sounds at the left base, clubbing of the fingers and toes, about 150 cubic centimetres (five ounces) of purulent sputum daily and moderate constitutional upset (dyspnœa, tachycardia, mental depression and anæmia).

I injected lipiodol through a catheter passed along one of the sinuses, and it outlined an empyema cavity beneath the posterior ends of the seventh, eighth,



FIGURE XVII. Case VII (William G.). Lateral bronchogram of same patient as in Figure XVI.

ninth and tenth ribs. No lipiodol entered the bronchial tree, so that his sputum was presumably coming from the lung and not from the empyema cavity.

His condition improved greatly after adequate drainage of the empyema, and I then injected the bronchial tree with lipiodol through an intratracheal catheter; the bronchograms showed extensive bronchiectasis of the left side. Further improvement followed bronchoscopic and postural drainage, and several months later I did a partial thoracoplasty over the empyema cavity, and at the same time opened into the cavities in the base of the lung. The wound was packed with gauze and kept open until it began to show signs of healing. The patient's general health has continued to improve, and the wound is now quite healed. The amount of sputum is less, and I hope that it will diminish still further with bronchoscopic and postural drainage.

BRONCHIECTASIS.

By W. S. NEWTON,
Melbourne.

THERE is no doubt that recent surgical advances in the treatment of bronchiectasis, so ably summarized by Mr. Susman, have aroused general interest in its problems. Unhappily, at present, surgical measures directed towards extirpation of the diseased portion of the lung have a high mortality rate, even in the most expert hands, and are not invariably followed by complete cure. There is also no doubt that surgical treatment is restricted in its scope owing to the relatively low percentage of cases in which the disease is limited to one lobe or even to one lung. I find, on consulting the records, that of the last 100 patients with bronchiectasis admitted to the Alfred Hospital, Melbourne, only 27 had a unilateral infection, and, of these, only 14 infections were unilobar, and, therefore, suitable for extirpation. It is interesting to note that six of these fourteen patients are able to follow their usual occupations under medical and bronchoscopic treatment; of the remainder, three are improved, but are unable to work, four are unimproved, and one is untraced. Only one patient, who has been reported by Brown and Renou,⁽¹⁾ was treated by lobectomy, and, in this instance, there were slight dilatations of the bronchi of the other lung at the time of operation. The patient made a good recovery after resection of the lobe, but, unfortunately, there has since been a considerable advance in the bronchial dilatation of the other lung. This illustrates the importance of restricting surgical treatment to cases in which there is not even a suspicion of involvement of the opposite lung. Three patients were treated by phrenic evulsion; this was followed by temporary improvement in one instance and definite retrogression in the other two. This method of treatment is not only of little avail, but is often actively harmful by abolishing diaphragmatic movement and so impeding drainage of the affected area by coughing. Three patients were treated by pneumotomy and one by thoracoplasty without improvement. In my opinion, the results of thoracoplasty are not good enough to justify the risk involved in the operation; and here it is of interest to note that Hedblom⁽²⁾ has reported a series of 32 patients treated by this method, with 11 deaths, three cured and 18 improved to a greater or lesser extent.

Compression therapy is rarely of value. My personal experience of artificial pneumothorax is limited to 18 cases, and, of the 18 patients,

two were apparently cured. These were treated before the introduction of lipiodol as a diagnostic measure, and I now believe that the diagnosis was inaccurate and that no true bronchial dilatation was present. This treatment gives little prospect of cure except in very early cases, which, however, can be more efficiently treated by bronchoscopic drainage.

There is no doubt that, in the future, resection of the affected portion of the lung will be generally practised in suitable cases, but there is also no doubt that this operation should be performed only by those⁶ who have devoted special attention to this branch of surgery. Graham's⁽³⁾ figures are instructive in this respect, in that he has performed 54 operations of this type with six operative deaths. The Brompton Hospital surgeons have operated upon 107 patients, with 15 operative deaths. It therefore seems that improvement in the results of the treatment of bronchiectasis can best be achieved by earlier diagnosis of the condition and skilled surgical treatment.

As I have already stated, there is, at present, a very large percentage of cases in which, owing to the extent or distribution of the disease, it is impossible to obtain a cure by this or any other means; but I wish to direct your attention to the fact that it is possible, by means of suitable team work of physician, bronchoscopist and radiologist, to improve the condition of most of these patients and to enable many to be useful members of the community. Team work of this description was inaugurated at the Alfred Hospital in 1920, when I collected a number of cases in an out-patient clinic. At this time postural drainage and, in selected cases, artificial pneumothorax were the chief methods of treatment. The injection of lipiodol, introduced by Sicard and Forestier⁽⁴⁾ in 1921, was first employed at the hospital by Dr. J. F. Mackeddle in 1923. Mr. Athol Blaubaum joined the team in 1930. He immediately became interested in the work and is an acknowledged master of his favourite instrument, the bronchoscope. I believe that he has the largest bronchoscopic clinic in this country. In the last few years some of the surgeons have interested themselves in thoracic surgery, but, owing either to the timidity of the physicians or to the success of Mr. Blaubaum, they have not as yet been given much opportunity to practise this branch of surgery. The remainder of this paper will be devoted to a summary of the opinions formed as a result of my experience as a member of this team.

Prophylactic treatment is of great importance. Suitable measures must be undertaken to cure infected nasal sinuses. When a foreign body is present in a bronchus, even prompt removal followed by aspiration of the pus will not always prevent the development of a bronchiectasis. Though collapse of the affected lobe will quickly disappear after removal of the foreign body, it often recurs owing to subsequent swelling of the infected mucosa leading to bronchial stenosis. If this stenosis is not promptly relieved by bronchoscopic dilatation and drainage, bronchiectasis or the formation of multiple abscesses will

supervene. I have eight cases in which bronchiectasis resulted from neglect of this precaution.

The diagnosis of bronchiectasis can be definitely established only by lipiodol injection. I have now almost discarded the use of the passive methods of introduction in favour of the bronchoscopic method, for the reason that bronchial stenosis in some form or other is generally present. This injection should be given in all cases of chronic pulmonary sepsis, other than those which are due to tuberculosis, in all cases of suspected bronchial stenosis, in all cases of repeated hæmoptysis in which no clinical or radiological signs of tuberculosis are present, and in all cases in which a persistent cough follows influenza or nasal sinusitis. Archibald and Brown⁽⁵⁾ have clearly indicated the dangers of lipiodol injection in pulmonary tuberculosis.

Whatever the type of case or the line of treatment determined upon, postural drainage plays an important part. In many cases it is the main treatment after an obstruction has been removed by bronchoscopy. In others it is used in association with repeated bronchoscopic aspiration, and it is also of great value as a preliminary to operation. Unfortunately, the mechanics of this proceeding do not seem to have been grasped by most practitioners.

For success it is essential to place the patient in such a position that he lies in the long axis of the cavity. If the cavities are multiple, then two or three positions may be necessary. To ascertain the optimum position the skiagram taken after lipiodol injection and the data obtained by bronchoscopic examination must be carefully considered in relation to the clinical findings, and even then a certain amount of trial and error will probably be necessary.

Postural drainage may be carried out continuously or intermittently. The continuous method is used for patients who are very ill, and the position is obtained by tilting the bed. For intermittent postural drainage some sort of table is advisable. Many tables are advocated, but I use one made from flooring-boards, which, though inelegant, is cheap and effective. The effectiveness of this procedure is considerably increased when it is used in conjunction with bronchoscopic aspiration. Much discussion has arisen about the use of expectorants in association with postural drainage. I use them and am certain they are of value.

I find little of value in other medical procedures. Injection of arsenical preparations, in this country at least, seems of use only when the fœtor is due to one of the spirochaetal organisms. Vaccines seem of little avail, even when made from the pus gathered in the cavity itself.

The value of bronchoscopy in diagnosis is now generally admitted, but many seem unwilling to agree that it is more useful than any other form of conservative treatment. This is especially evident in the writings of the English school, and is remarked on by Davidson,⁽⁶⁾ who states that "the use of the bronchoscope, not only in diagnosis, but also in treatment of suppurative lung lesions, is still unfortunately neglected in this country at least".

In expert hands it is really a simple procedure which, with rare exceptions, may be performed under local anaesthesia in patients over ten or twelve years of age. It must be understood that bronchoscopic drainage is used nearly always in association with postural drainage. Its objective is not to abolish the cavities, but to keep them dry and thereby to maintain the patient in a symptomless condition. It is certainly the only effective method we have of dealing with the bilateral type of infection. It is also of considerable value in many unilateral cases, especially those of bronchiectasis following a foreign body in the lung, and of abscess caused by nose and throat operations. In these cases it should be instituted at the earliest possible moment, for it not only helps to prevent local spread, but also prevents "spilling over" and consequent infection of the other side. In some cases one or two treatments are sufficient to promote good drainage, and the patient is then able to carry on with posture alone. In others this is possible only after a series of treatments, and, in a few, repeated bronchoscopy is necessary. The symptoms indicating that further bronchoscopic aspiration is required are: (i) increase of cough and expectoration, (ii) a sudden decrease of expectoration, or (iii) the return of toxic and general symptoms.

The bronchoscope, except perhaps in the early and mild case, cannot produce a cure, but, with the aid of postural treatment, bronchoscopic aspiration will frequently maintain the patient in a symptomless condition and permit him to take his proper place in society. Whilst I can maintain a patient in reasonable health by this means, I hesitate to submit him to an operation in which the mortality is at present, even in the most skilful hands, at least 14%.

CONCLUSIONS.

1. Prophylactic treatment is of the greatest importance, especially in the lung abscess and foreign body type.
2. Surgery is the only treatment that holds out hope of cure.
3. The only useful operation consists in extirpation of the diseased area.
4. The percentage of cases suitable for such operation is comparatively small, but this can be increased by early investigation of the suspected case and by care in the prevention of "spill over".
5. Bronchoscopy and postural drainage, though not producing a cure, will alleviate and maintain many patients in a symptomless condition. They are the best of the conservative methods of treatment, and in the bilateral case are the only effective form of treatment.

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BRONCHIECTASIS.

By ATHOL BLAUBAUM,
Melbourne.

IN the evaluation of the treatment of bronchiectasis the cooperation of the physician, the radiologist, the bronchoscopist and the surgeon is required. It must be understood that the term bronchiectasis means a dilated or enlarged bronchus. This may be congenital, developmental or acquired. Add to this enlarged bronchus infection and you have the established disease with which we are familiar.

The stage in which we generally see patients with bronchiectasis is late, as a rule with copious purulent or muco-purulent secretion, the bronchial tubes enlarging through the tubular form to the final stage of cavitation, the so-called saccular bronchiectasis.

It is important to recognize whether the disease is limited to one lobe or whether the condition is multilobar and present in both lungs, for the prognosis and treatment will be determined by the extent of the lesions. It is common, though not invariable, to see in patients with bronchiectasis an upper respiratory infection.

It cannot at present be stated whether the sinusitis is a cause of bronchiectasis. It is usually considered that the sinusitis and the bronchiectasis are part of the same infection and occur together, though some authors are of the opinion that the sinusitis is secondary to the bronchiectasis and due to the coughing and the spraying of the nasopharynx which are occurring all the time.

It is as the bronchoscopic member of the team investigating bronchiectatic disease that I take part in this discussion. We receive these patients from the physician, and it is our duty to report on the bronchoscopic findings and prepare the patients for lipiodol injection and X ray survey in the X ray department.

We have long found out that injection of lipiodol into the bronchial tree full of purulent secretion will not give a true picture of the condition. The lipiodol will simply float on the thickened secretion and will not fill the cavities. We always first aspirate the cavities thoroughly with the bronchoscope and suction tube under local anæsthesia.

The advantages of the first bronchoscopic examination are that it is possible to determine the presence of a foreign body, a neoplasm, a stenosis, a distortion of the bronchus due to extrinsic pressure, a thickening of the carina due to peribronchial fibrosis; it is possible to see the pus oozing out of the subsidiary bronchi, to note œdema of the mucosa, granulations *et cetera*, to take measures that will make the œdema disappear, to iron out the granulations, and so to be sure that the lipiodol will enter the affected area. A catheter, the ordinary endotracheal catheter, is then inserted, and the patient is sent down to the X ray department, where he is first examined by the screen while the

lipiodol is injected through the catheter. During this process the patient is postured in various positions, so that the whole bronchial tree can be outlined; twenty cubic centimetres of lipiodol are used and both lungs can be outlined with this. An antero-posterior and a lateral skiagram are then taken. The anæsthetization of the bronchial tree with 3% "Pantocain" is usual, as it prevents coughing and so the spilling over of the lipiodol into the alveoli, which would cloud the picture. We are continually on the look out for patients suitable for lobectomy. The indications are an advancing bronchiectasis limited to a lower lobe in the left lung or a lower or lower and middle lobe in the right lung. Although we see a large number of these bronchiectatic patients, we find that at the Alfred Hospital, Melbourne, it is rare to find a patient with the limited lesion which would enable us to consult the surgeon with a view to lobectomy. We have seen only three patients with bronchiectasis in the last two years who would be suitable for lobectomy.

In the preparation of a patient for lobectomy all upper respiratory infection, such as sinusitis, infected tonsils and teeth, must, if possible, be eradicated, and the condition of the affected lobe be made as good as possible by regular aspirations; the patient must be rested, and his general health be built up to enable him to go successfully through such a formidable procedure as lobectomy.

In patients for whom lobectomy is unsuitable, and they are in the vast majority, the question to be asked is: "What can bronchoscopic treatment do for them?" We can state that once the disease is established, no bronchoscopic treatment can bring about a cure. Sometimes we get what may be called symptomatic cure in an early case, but after an interval the patient will relapse.

What bronchoscopic treatment will do for a patient can be stated thus: It will remove the foreign body or endobronchial tumour causing bronchiectasis. This will relieve the patient especially of his fetor and amount of sputum, but will not bring his bronchial tree back to normal. Jackson is of the opinion that the fundamental factor in all suppurating lung conditions is bronchial obstruction (whatever it be due to) which interferes with the normal drainage mechanism of the lungs. This is so; but once the bronchiectasis is established, the only real cure can be the removal of the diseased area by the surgeon. It follows that such procedure as pneumothorax and avulsion of the phrenic nerve are not to be recommended.

Bronchoscopic aspiration, any sinusitis having been cured, can help the physician to improve his patient further by posture *et cetera*; it will lessen the patient's toxæmia and sputum, improve his sleep, ease his cough and get rid of the fetor, and so enable him to mix once more with his fellows instead of being a pariah.

The preventive measures consist in the thorough treatment in childhood of all chest complaints, an acute condition never being allowed to become chronic, by the early recognition of all cases of sinusitis in children and its efficient treatment. Of course, the recognition and early removal of foreign bodies from the bronchial tree are most essential.

EXTENSIVE PARTIAL GASTRECTOMY AS THE SURGICAL TREATMENT OF CHRONIC GASTRIC ULCER.

By S. G. L. CATCHLOVE,
Melbourne.

THE purely medical treatment of gastric ulcer has for long raised many vexed questions, while the most appropriate surgical procedure has also remained somewhat controversial.

A small series of cases of the chronic gastric ulcer type in which extensive partial gastrectomy was performed is here presented with after-results, and a plea is made that such cases should be submitted earlier to the surgeon with a view to removing the ulcer *en masse*, together with the greater part of the acid-bearing area of the stomach. It is suggested that this would prevent gross pathological changes taking place, with the undoubted risk of hæmorrhage, perforation, penetration of other organs, and possibly malignant change.

This view has been arrived at because prolonged medical treatment has in many cases failed to heal the ulcer, and in some cases has even failed to relieve symptoms. Further, the commonly accepted surgical procedures, such as gastro-enterostomy, gastro-enterostomy with excision of the ulcer, or gastro-enterostomy with resection, have not, in my opinion, given the good results expected of them. In many cases they have not even relieved symptoms, and have in some instances even left the patient worse off, not only with the original chronic gastric ulcer, but with an acute jejunal ulcer. Being impressed with the work of Mr. W. H. Ogilvie, of London, who advocates extensive partial gastrectomy as the most satisfactory procedure in the treatment of chronic gastric ulcer, I have endeavoured to follow closely his methods, and here present a small series of such cases, with their results.

I do not maintain that partial gastrectomy should entirely displace other surgical methods, such as gastro-enterostomy. This procedure should be recommended, however, only after full and careful investigation of each patient; and it finds its greatest application when mechanical obstruction is present. It is important, too, that the medical and surgical treatments of this disease should not be divorced from one another or opposed in any way, but should be used in conjunction in all cases.

It is now universally agreed that the care of the acute gastric ulcer is the responsibility of the physician, except in the presence of profuse

hæmatemesis, or when perforation occurs. Sometimes, however, the acute ulcer passes into the stage of chronicity, frequently by no fault of the treatment, but because of the economic state of the patient, which prevents him from undergoing prolonged efficient medical treatment.

It is difficult to state how long these patients should be carried on in a state of semi-invalidism, unable to work, unable to enjoy food, and with a constant fear of pain, should they fail to keep to a strict diet. One must always remember that even if healing does occur, these patients are liable to suffer from pyloric obstruction or hour-glass stomach. I believe that they should become the responsibility of the surgeon much sooner than is usually recognized, and that a consideration of any series such as the present would convince both physicians and surgeons of the soundness of this belief.

The surgical treatment of chronic gastric ulcer has been subjected to many changes. The operation of gastro-enterostomy when applied in suitable cases, such as pyloric stenosis, has given excellent results, but when applied, as it has been, to almost all types of gastric and duodenal ulceration, it often fails completely to cure, and may even leave the patient worse off than before.

There still remains considerable difference of opinion as to the best surgical procedure to adopt, and in no other surgical disease is it more important to regard each case as a separate and distinct problem. Due consideration must be given to the various factors which have helped to create the pathological conditions present, particularly the age, history, duration and severity of the gastric symptoms, the economic status of the patient, and his physical fitness. Even then the surgeon must still have an open mind until after laparotomy, when a complete abdominal examination will reveal the site, extent and degree of adhesion of the ulcer. Small non-adherent ulcers situated along the distal half of the lesser curvature are comparatively easy problems compared to those adherent to and invading and penetrating the pancreas, or to those high up along the lesser curvature in close proximity to the œsophageal opening.

INDICATIONS FOR OPERATIVE TREATMENT.

The following summarizes my conception of the indications for operation:

1. When prolonged medical treatment in hospital, which, of course, is often quite impossible, or strict medical treatment under the guidance of a physician has failed to cure permanently or relieve, or when the patient's financial state precludes him from undergoing such treatment, surgical operation, which offers here a far more rapid return to an economic life, should be advised.
2. When perforation occurs, or when the patient suffers from repeated attacks of hæmatemesis.
3. When the radiological findings show pyloric obstruction or hour-glass stomach, or when the deformity of the gastric outline is such as to indicate penetration of neighbouring organs or gross fibrosis and

cicatrization. In these cases permanent healing is difficult, prolonged or impossible, because the more chronic the ulcer, the greater the induration and the poorer the blood supply. This is particularly true of all chronic ulcers involving the pancreas.

4. It must be borne in mind that a chronic ulcer may undergo carcinomatous change, and that, although the proportion that do so is

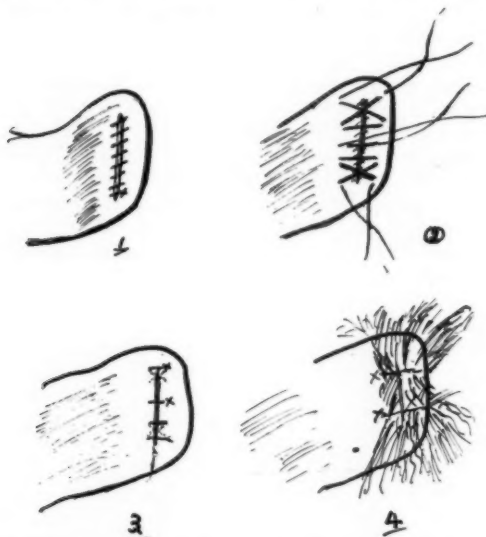


FIGURE 1. Stages in method of closing duodenum. 1. A continuous stitch. 2. Two end sutures are inserted in a crucial fashion—the central stitch is transverse. (Sir Hugh Devine kindly demonstrated this method to me.) 3. After the above three sutures are tied. 4. Pieces of adherent omentum are tied over the butt end.

uncertain, it is safer to regard every gastric ulcer as potentially malignant until proved otherwise. This is a further argument for widely removing a chronic gastric ulcer.

SYMPTOMATOLOGY.

A history of typical chronic dyspepsia was obtained in most of the cases. The outstanding feature was the long duration of symptoms, often extending over many years with occasional intermissions, when the pain would be of slightly less severity, although at no time would there be entire freedom from pain. The severity of the pain showed a definite seasonal variation, being as a rule most marked between the months of July and November (that is, winter and spring). The site of the pain was usually in the left epigastric region, but in some cases

constant pain in the back suggested an ulcer penetrating the pancreas. This was confirmed at operation in all the patients complaining of such pain. In most of the cases this continuous pain was the only symptom, being unrelieved by medicine, while the taking of food was followed



FIGURE II. 1. Shaded area representing approximately the area of stomach removed. 2. Gastro-jejunal anastomosis—remaining stomach elongated, showing the proximal jejunum being anchored high up along the lesser curvature towards the oesophageal opening. 3, 4, 5. Sketches of X ray photographs of barium meal following partial gastrectomy, showing the elongation of the remaining stomach with which the descending part of the jejunum becomes an elongated tube.

very shortly by an increase of pain. This was so common that the patient was often frightened to eat because he knew that eating would mean an increase of his pain. As a result, most of the patients showed much loss of weight.

Nausea and anorexia were not prominent symptoms, while vomiting occurred very rarely. Medical treatment for a time did relieve symptoms, but all patients eventually relapsed, and the findings at operation showed

that the ulcer still persisted. In view of the long history of gastric upset, the failure of medical treatment, the positive radiological findings in all cases, and the inability to carry on employment, it was considered that nothing less than a partial gastrectomy was indicated in all of these cases.



FIGURE III. Case I. Skiagram taken before partial gastrectomy. There is nearly 100% gastric residue, denoting gross pyloric obstruction.

PRE-OPERATIVE TREATMENT.

As a general rule, patients were kept in bed for about ten to fourteen days prior to operation, being allowed up for a few hours during the day. Some, however, were too ill to allow of this procedure, and these were operated upon sooner. They were all fed upon a fluid diet, sterilized as far as possible. Gastric lavage was used in the obstructive cases, and each patient had the stomach washed out one hour before operation, while morphine sulphate 0.015 gramme (one-quarter of a grain), and atropine sulphate 0.43 milligramme (one one-hundred-and-fiftieth of a grain) were given half an hour before operation.

THE OPERATION.

General anaesthesia in the form of ether or gas and oxygen was used in all cases. A right paramedian upper abdominal incision was used as

a routine, but in those cases in which the ulcer was known to be in the proximal half of the stomach, a left paramedian incision was used. A thorough manual and visual examination of the abdomen was made as a routine in all cases in order to confirm the diagnosis, to determine accurately the gastric pathological change present, and to exclude the presence of malignant or other diseases. Devine's rectangular retractor was found of great service, as it gave a thorough and wide exposure without the surgeon's being hampered by assistants.

The usual surgical toilet was strictly adhered to, and by the free use of abdominal packs the field of operation was securely walled off from the rest of the abdomen.

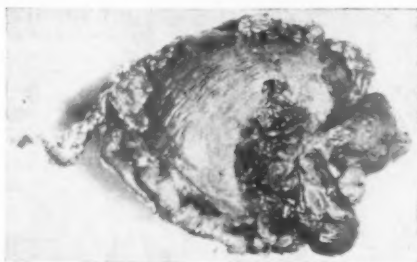


FIGURE IV. Case I. Pathological specimen removed at operation, showing a grossly indurated ulcer in close proximity to the pylorus, penetrating the lesser curvature, causing much puckering of the gastro-hepatic omentum.

The gastrectomy in all cases was begun at the pylorus, and in all but one (Case VI) the section was made distal to the pylorus in the first part of the duodenum. The duodenum was closed by a continuous suture and oversewn by two terminal crucial sutures and one medial transverse stitch, the line of sutures being covered by adjacent omentum (Figure I).

The gastro-hepatic omentum was in all cases thickened, and adherent in two cases to the under surface of the liver. In Cases III and IV, in which the ulcer had penetrated into the body of the pancreas, the area of surrounding inflammation, fibrosis and cicatrization was very extensive and involved the major part of the posterior wall of the stomach, and almost obliterated the lesser sac. This area was carefully separated, at first digitally, until the actual site of penetration into the pancreas was reached; the endotherm knife was then used with great advantage in the actual division of the organized tissue between the two viscera without any hæmorrhage whatever.

The proximal section of the stomach was made high up along the lesser curvature in a horizontal direction across the stomach to the fundus, thus removing approximately three-quarters of the stomach

and the whole of the acid-bearing area. In Cases III and IV approximately seven-eighths of the stomach was removed. (See Figures IX and XIII.)

No clamps were used upon the proximal end of the stomach, and the section was made by using the endotherm knife, thereby preserving as far as possible the vitality of the tissues. The gastro-jejunal anastomosis was of the anterior Pólya type, bringing an elbow of jejunum well along the remaining curvature so as to prevent any leakage from the so-called "dangerous angle" (see Figure II).



FIGURE V. Case I. Skiagram taken five months after partial gastrectomy, showing efficient gastro-jejunal anastomosis. Stomach emptied within six hours.

No clamps were used for the anastomosis, tension being made by the use of "guy sutures". All cutting was performed by using the endotherm knife. I believe this lessens hæmorrhage, and that it does not injure tissue if the correct ampérage is used. Care was specially taken to ensure complete hæmostasis, and all soiling of the peritoneum was prevented by the constant use of the suction pump, this being held in constant readiness by the first assistant nurse.

There was no undue shock, and no fluids were given during the operation.

POST-OPERATIVE TREATMENT.

On the patient's return to the ward glucose in ordinary tap water was administered *per rectum* at intervals, while for two days morphine

was given somewhat freely. Fluids by the mouth were begun on the second and never later than the third day. There was practically no post-operative shock, and no case gave anxiety.

CASE HISTORIES.

CASE I. Geo. W., aged fifty years, had for over seven years complained of dull aching pain in the central abdomen occurring at 10 a.m. and 3 p.m. The



FIGURE VI. Case II. Skiagram taken before partial gastrectomy, showing penetrating ulcer in *pars media* of the lesser curvature.

pain would awaken him at night, and would continue until the next meal, being relieved by the taking of food. The pain did not radiate, and never doubled him up. The appetite had always remained good. Vomiting had occurred two years previously and recurred at intervals of several weeks, lasting four to five days; no blood was noticed at any time in the vomitus nor in the stools.

He had been under medical treatment for a period of three years, and had attended the medical out-patient department for fifteen months. The last medical notes read: "There is clinical and radiological evidence of a gastric residue after six hours, and, although he is symptomatically improved, I think gastro-enterostomy is indicated whilst his general condition is good."

The fractional test meal showed the following:

Fasting contents.	Free acid.	Total acid.
$\frac{1}{4}$ hour	15	23
$\frac{1}{2}$ hour	20	31
$\frac{3}{4}$ hour	33	44
1 hour	39	49
$1\frac{1}{4}$ hours	42	51
$1\frac{1}{2}$ hours	43	55

The radiological report was as follows: "There is nearly 100% gastric residue after six hours, denoting gross pyloric stenosis, presumably due to duodenal ulcer." (See Figure III.)



FIGURE VII. Case II. Pathological specimen. Section made along greater curvature exposing the gastric mucous membrane, showing penetrating ulcer of the lesser curvature.

Operation was performed on October 17, 1935. The usual right paramedian incision was made, the abdomen was examined, and the field of operation was walled off. The distal half of the stomach was grossly thickened and the gastro-hepatic omentum puckered. The pylorus itself was grossly indurated, and in the centre of the whole mass there was extensive cicatrization, indicating the site of the ulcer. Partial gastrectomy was performed, including the first part of the duodenum. The proximal section was made high up along the lesser curvature, fully three-quarters of the stomach being removed. The operation was completed by the Pólya anterior loop method.

Macroscopic examination of the specimen after the operation showed no pyloric stenosis; the index finger could be easily inserted through the pylorus. There was a grossly indurated ulcer in close proximity to the pylorus, penetrating the lesser curvature and causing much cicatrization of the gastro-hepatic omentum. (See Figure IV.)

Microscopic examination showed chronic inflammation, with no evidence of malignant disease.

The patient made an uneventful recovery and gave no post-operative anxiety whatever. He was discharged from hospital on the twenty-fourth day after operation in a very good condition.

Two months after operation he had no pain after eating, and was gaining weight. Five months after operation the radiological report was: "Stoma is active, slow trickle through. Stomach empty in six hours." He was still gaining weight, had no gastric symptoms, and had gone back to work. (See Figure V.)

Seven months after operation the patient had gained more weight, he had had no vomiting and no pain after eating, while his general condition was good.



FIGURE VIII. Case II. Skiagram taken ten months after partial gastrectomy, showing gastro-jejunal anastomosis working well. No gastric residue.

In August, 1936, eleven months after operation, the patient's weight was more stationary, and he had had no pain since operation. His appetite was good, there were no dyspeptic symptoms, and he could eat any sort of food without indigestion. He was carrying on his work as a wharf labourer. Examination of test meal showed achlorhydria up to one hour.

CASE II. W.T.Mc., a male, aged forty-eight years, had had indigestion for twelve to thirteen years, and had lost two stone in weight. The pain was practically continuous, and was relieved after vomiting acid material and by eating food, although the pain tended to recur two hours after food. It was referred to the left side of the upper part of the abdomen. Six weeks before he had vomited blood, and had noticed "coffee grounds" in the vomit on various occasions for the past six years. It was considered in the out-patient department that efficient medical treatment had not been previously carried out under out-patient and home treatment, and he was therefore admitted as a medical in-patient. His condition improved for a time under this régime, but he complained of gnawing pain when the stomach was empty and of persistence of all the above symptoms.

He had some tenderness in the left hypochondrium. Examination of the faeces revealed no occult blood.

His medical card reads: "This patient has a chronic gastric ulcer of 12 years' persistence, even under intensive medical treatment, and, as he is not improving, we think surgery is indicated."

The radiological report was that a gastric ulcer was present in the *pars media* along the lesser curvature. (See Figure VI.)



FIGURE IX. Case III. Skiagram taken before operation, showing large penetrating ulcer on the lesser curvature.

The fractional test meal showed the following:

Fasting contents.	Free acid.	Total acid.
$\frac{1}{2}$ hour	11	19
$\frac{3}{4}$ hour	32	40
1 hour	43	54
$1\frac{1}{2}$ hours	23	31

Operation was performed on July 10, 1935. The usual right paramedian incision was made, and the abdomen was examined. The stomach was exposed and the gastro-hepatic omentum was found to be greatly thickened and puckered along the medial third of the lesser omentum. An extensive partial gastrectomy was performed, the distal section being made in the first part of the duodenum and the proximal section high up along the lesser curvature in an almost horizontal plane across the fundus of the stomach to the greater curvature. The gastro-jejunal anastomosis was completed by the Pólya anterior loop method. The jejunal loop was brought well up along the lesser curvature.

The patient made a good post-operative recovery, with no abdominal distension and no rise of temperature. He was discharged from hospital on the twenty-second day after operation.

The specimen showed a penetrating ulcer of a chronic nature on the lesser curvature, with marked thickening and induration of the gastro-hepatic omentum. (See Figure VII.)

Microscopic examination revealed only chronic inflammatory change; there was no evidence of malignant disease.

Two months after operation the patient had had no symptoms of indigestion, and was able to do his work. Eight months after operation he had been very well, had had no dyspeptic symptoms, although he had been eating almost any kind of food.



FIGURE X. Case III. Pathological specimen removed at operation. Stomach opened along the greater curvature, showing large perforating ulcer of lesser curvature.

Ten months after operation, a radiological report was received stating that the stoma was working well. (See Figure VIII.)

Eleven months after operation the patient had no symptoms, he had no pain after food, and was working eight hours a day. The fractional test meal showed achlorhydria throughout up to one hour.

Twelve months after operation, in August, 1936, the patient had gained weight; he was now 78.3 kilograms (12 stone 6 pounds). He had no trouble with the stomach whatever, he had not had any pain since operation, his appetite was good, there was no fullness after meals, and he had been at full manual work for the past nine months.

CASE III. E.H.D., a male, aged fifty-one years, had had gastritis with indigestion for several years, and had been operated upon at a public hospital ten years previously for perforation of a gastric ulcer. For the past six months he had had practically continuous pain in the pit of the stomach, with a burning sensation in the throat, the pain being worse at night and often radiating to the back. It was not particularly related to the taking of food. He stated that he had been on strict diet and medicine for a period of eight months, September,

1934, to May, 1935. He had had some attacks of vomiting recently, and the recurrence of severe constant epigastric pain had forced him to take to his bed for the previous two weeks. The pain was not relieved by food, and medicine gave only a few minutes' ease from pain. He had lost weight, and he had noticed the stools to be black. On his admission to hospital in September, 1935, he was very emaciated, and his condition appeared grave.

On admission it was found that his upper abdominal muscles were on guard, the abdomen not moving well on respiration. He was tender in the epigastrium, and so grave was his condition that the house surgeon considered that he might again be suffering from a perforation.

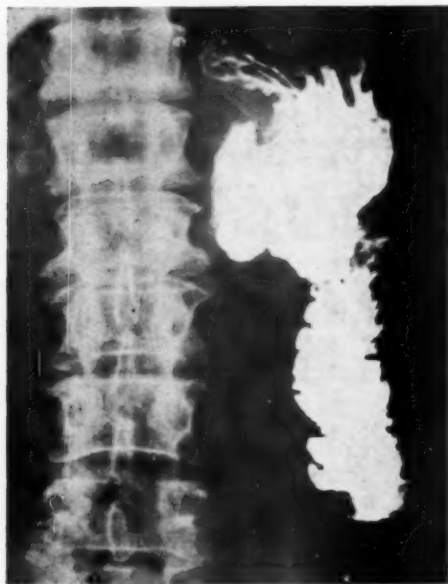


FIGURE XI. Case III. Skiagram taken nine months after extensive partial gastrectomy shows gastrojejunal anastomosis working efficiently.

The fractional test meal showed 0.76% free acid and 0.9% total acid in one hour, and there was no occult blood in the faeces. Radiological examination revealed a large ulcer on the lesser curvature. (See Figure IX.)

At operation in October, 1935, a right paramedian incision was made, and on opening the abdomen very extensive adhesions were found involving the gastrohepatic omentum over practically its whole extent. The induration was very pronounced, and chronic inflammation extended from the pylorus almost to the oesophageal opening. Cicatrization and puckering were present at the site of the ulcer along the lesser curvature. The gastro-colic omentum was severed along the greater curvature; the first part of the duodenum was mobilized and clamped with Payr's clamp. Much difficulty was experienced in dividing the gastrohepatic omentum owing to its induration. Owing to the ulcer having penetrated into the body of the pancreas and the consequent dense adhesions, great technical difficulty was further encountered. The endotherm knife was found to be of

great service in separating the stomach from the pancreas; when this was done a large perforating ulcer was exposed. (See Figure X.) The proximal section was made high up along the lesser curvature transversely towards the greater curvature. The gastro-jejunal anastomosis was made after the Pólya anterior loop method with the "Finister spur".

Macroscopic examination of the specimen showed a large perforation along the lesser curvature, dense adhesions on the posterior wall, and a large chronic ulcer with much induration. Microscopic examination showed chronic inflammatory change only.



FIGURE XII. Case IV. Skiagram before operation, showing large, deeply penetrating ulcer in the upper half of the lesser curvature.

The patient made an uneventful recovery; there was very little shock following operation, nor was there much discomfort or abdominal distension. He was discharged on the twenty-fourth day after operation.

Three months after operation the patient had no pain or vomiting. The wound was a little sore; he had been eating all kinds of food, meat *et cetera*, and there was some tendency for the food to repeat. He had gained weight.

Five months after operation the patient was feeling well; he had no pain or vomiting, and had gained 12.6 kilograms (two stone) in weight in two months.

Nine months after operation an X ray examination showed the stoma to be working efficiently, while the fractional test meal revealed achlorhydria. The patient was now very well, was gaining weight, and was carrying on his full work. (See Figure XI.)

In August, 1936, ten months after operation, the patient had no pain or discomfort after meals and was eating practically anything. He had been working eight hours a day in an iron foundry for the past nine months. The fractional test meal still showed achlorhydria.

CASE IV. J.L.W., a male, aged forty-two years, had complained for the previous two years of pain in the upper part of the abdomen about an hour after meals. For the past five months the pain had become constant, and had been felt in the back. His appetite had been good, his bowels regular; there had been no nausea and no vomiting until the last two weeks, since when he had vomited twice a day. He had lost 12.6 kilograms (two stone) in weight during the last five months.

On examination he was thin and looked ill; the muscles in the epigastric region were on guard, but the abdominal muscles below the umbilicus moved

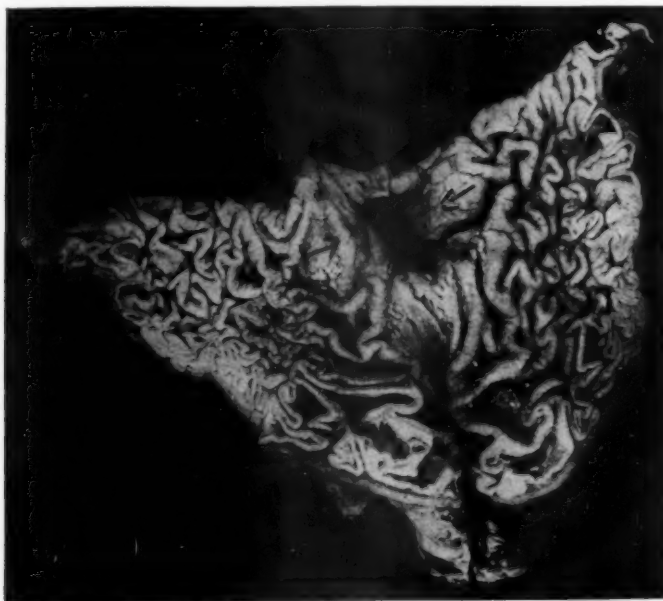


FIGURE XIII. Case IV. Pathological specimen removed at operation, cut along the greater curvature, showing large perforating ulcer.

well with respiration. Palpation revealed tenderness in the epigastrium on the left side. In view of the patient's long history, his generally poor condition, the severe pain, together with the acute epigastric tenderness, and the radiological finding of a large deeply penetrating ulcer, it was considered advisable to submit him to operation at once. (See Figure XII.)

Operation in November, 1935, on the third day after the patient's admission to hospital, disclosed an indurated, chronically inflamed area along the greater part of the lesser curvature, while the gastro-hepatic omentum was thickened and puckered. The lesser peritoneal cavity was obliterated, and the posterior wall of the stomach was densely adherent to the body of the pancreas. The inflammatory mass extended almost to the œsophageal opening, but the pylorus appeared normal.

An extensive partial gastrectomy (almost total) was performed. Some difficulty was experienced in freeing the posterior wall of the stomach from the

pancreas. The widespread inflammatory adhesions were carefully separated by the finger, and then the line of "cleavage" was separated by the endotherm knife without any bleeding. The stomach was easily lifted up and turned well to the left. The proximal gastric section was made approximately 3.75 centimetres (one and a half inches) distal to the oesophageal opening transversely across to the fundus, almost the whole of the stomach being removed.

The gastro-jejunal anastomosis was of the Pólya anterior loop type. The proximal loop was brought up in close proximity to the oesophageal opening, thereby lessening the risk at the dangerous angle. The patient's post-operative



FIGURE XIV. Case IV. Skiagram taken seven months after extensive partial gastrectomy showing gastro-jejunal anastomosis working efficiently.

recovery was uneventful. He suffered from no abdominal discomfort or distension, and was discharged from hospital within one month of operation, with relief of all symptoms.

The specimen showed a large chronic ulcer on the proximal third of the lesser curvature with much surrounding induration and inflammation (see Figure XIII).

Microscopically the ulcer was of the very chronic inflammatory type, with no evidence of malignant disease.

Two months after operation the patient had no symptoms whatever, and had put on 3.6 kilograms (eight pounds) in weight. Seven months after operation X ray examination showed the anastomosis to be working efficiently (see Figure XIV). There was no vomiting and no pain. Nine months after operation the patient had no symptoms.

In August, 1936, ten months after operation, the patient said that he felt splendid, had no pain, no vomiting and no acidity, and could eat anything at all. He was gaining in weight; he now weighed over 69.3 kilograms (eleven

stone). He had been working for months, eight hours a day. The fractional test meal showed achlorhydria throughout up to one hour.

CASE V. C.C., a male, aged seventy-two years, complained of constant and severe upper abdominal pain. It bore no relation to the taking of food. He had vomited frequently for the previous several weeks, the vomiting occurring soon after meals. His symptoms had been more acute for the past three or four weeks, and he had lost much weight. From the out-patient department he was recommended for admission to hospital with a diagnosis of pyloric carcinoma.

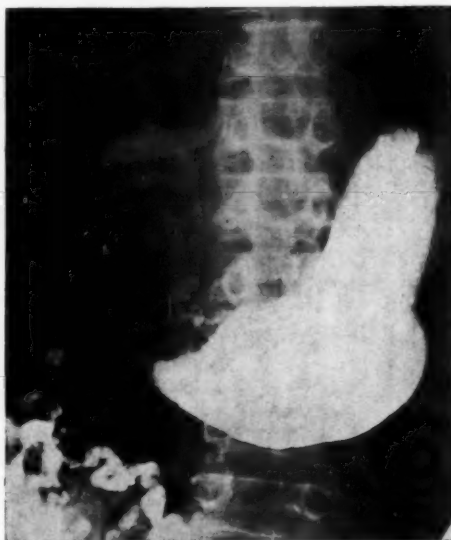


FIGURE XV. Case V. Skiagram taken before operation. There is a grossly obstructive lesion at the pylorus. The residue at twenty-four hours is almost 100%.

The radiological report was that there was a very grossly obstructive lesion at the pylorus, the residue at twenty-four hours being almost 100% (see Figure XV).

Blood examination showed the red corpuscles to number 3,300,000 per cubic millimetre; the leucocytes numbered 8,300 per cubic millimetre; the hæmoglobin value was 53%. Occasional poikilocytes were seen. There was an increase in lymphocytes; a large number of undeveloped lymphocytes were seen. Some myelocytes were present. The stools contained no occult blood.

A fractional test meal gave the following results:

Fasting contents.	Free acid.	Total acid.
—	3	18
$\frac{1}{4}$ hour	0	16
$\frac{1}{2}$ hour	3	22
$\frac{3}{4}$ hour	44	60
1 hour	53	65
$1\frac{1}{2}$ hours	25	39

It was considered that pyloric carcinoma had not been definitely proved, and that, in view of the comparatively short history of several weeks, surgical

removal might be possible. Operation was at first absolutely refused by the relatives, who said: "Let him die in peace." Consent was later obtained, and he was transferred to one of my surgical beds.

At operation the gall bladder was found densely adherent to the first part of the duodenum, pylorus and pyloric end of the stomach. The left half of the gastro-hepatic omentum was greatly thickened and puckered at the site of a pyloric ulcer.

Partial gastrectomy was performed according to the Pólya anterior loop method. The distal section was made through the first part of the duodenum.



FIGURE XVI. Case V. Pathological specimen removed at operation, showing mucous surface with punched-out, penetrating pyloric ulcer in the lesser curvature. The specimen is cut along the greater curvature.

He suffered very little shock at operation, and made an uneventful post-operative recovery until the eighth day, when the wound opened because by some unfortunate misunderstanding the sutures were removed on the seventh day after operation. The wound discharged for nine days, but during the whole period there was no discomfort and no abdominal distension. The patient was discharged from hospital apparently quite well in the sixth week after operation.

Macroscopically the specimen showed the pyloric end of the stomach to be grossly thickened; the gastro-hepatic omentum was thickened and puckered, and a chronic punched-out ulcer was present on the lesser curvature. There was apparently no pyloric obstruction (see Figure XVI).

Microscopically the ulcer showed chronic inflammatory change and no evidence of malignant disease.

Three months after operation the patient had been free from gastric symptoms and had had no pain or vomiting. Seven months after operation X ray examination showed that the gastro-jejunal anastomosis was working well. The patient had had no vomiting and was still very well, with no dyspepsia. (See Figure XVII.)

In August, 1936, twelve months after operation, the patient had kept very well, was free from pain, and was eating well, with no discomfort. The medical superintendent of the benevolent hospital in which he stays reports: "The patient has no pain or vomiting. He is eating well on full diet, and is perfectly happy."



FIGURE XVII. Case V. Skiagram taken seven months after partial gastrectomy, showing gastro-jejunal anastomosis with stoma working efficiently. Stomach empties within six hours.

CASE VI. Mrs. E.H.S., aged fifty-six years, had always been a martyr to indigestion, and for the previous twelve months had complained of severe abdominal pain, which, however, bore no definite relationship to the taking of food. Recently the constant pain had been much more severe, radiating to both sides and through to the back. There had been loss of appetite, some loss of weight, but no vomiting.

On examination the abdomen was lax, and there were tenderness and rigidity in the left epigastric region, but no mass was palpable.

Radiological examination demonstrated a large perforating ulcer on the lesser curvature of the *pars media* of the stomach. The test meal showed no free acid and no lactic acid. The blood did not react to the Wassermann test. A blood count showed the haemoglobin value to be 84%; the white cells numbered 3,100 per cubic millimetre, and the red cells 4,500,000 per cubic millimetre.

Operation was performed under gas and oxygen anaesthesia. The abdomen was opened, and extensive adhesions were found between the gall bladder, the duodenum and pyloric end of the stomach. The gastro-hepatic omentum was much thickened and puckered, and the lesser curvature was adherent to the under-surface of the liver. On separating these a large inflammatory mass was found along the upper third of the lesser curvature. The pyloric end of the stomach was mobilized and divided about 2.5 centimetres (one inch) proximal to the pylorus by Payr's clamp and the endotherm knife. The operation was completed in accordance with the Pólya anterior loop method.



FIGURE XVIII. Case VI. Pathological specimen removed at operation, showing the mucous surface of the stomach and a large penetrating ulcer in the upper third of the lesser curvature.

The fresh specimen examined after operation showed a large penetrating ulcer, approximately 12 by 18 millimetres (one-half by three-quarters of an inch) in diameter, on the upper third of the lesser curvature. (See Figure XVIII.)

The post-operative course was satisfactory. The patient failed from the very beginning to retain the saline solution given by the rectum, and fluids were given by mouth within forty-eight hours. She had no abdominal distension or discomfort, and her fluid diet caused no pain. On the fourteenth day a small barium meal was given, and it showed the meal about to leave the remaining stomach and commencing to enter the descending jejunal loop. (See Figure XIX.)

The patient was discharged from hospital in a satisfactory condition on the fifteenth day after operation.

Two months after partial gastrectomy the patient was feeling well, she had no return of pain and was eating semi-solids without discomfort.

In August, 1936, five months after operation, the patient had no pain after food, her appetite was good, she was gaining weight and felt very much better. She was doing ordinary domestic work and light gardening.

SUMMARY.

1. Six patients who gave a history of gastric symptoms of long duration associated with constant pain have been submitted to partial gastrectomy with no mortality.



FIGURE XIX. Case VI. Skiagram taken fourteen days after partial gastrectomy; a small quantity only of barium was given. The skiagram shows the meal just about to leave the remaining stomach and commencing to enter the descending jejunal loop.

2. Medical treatment under hospital *régime* gave only partial or temporary relief.

3. The gross pathological condition found at operation confirmed the long-standing nature of the disease with no evidence of complete healing, but showed evidence of slow progression towards deep penetration and perforation.

4. In four cases hyperchlorhydria was transformed into achlorhydria.

5. Partial gastrectomy gave immediate relief in all cases, with no return of symptoms up to a period of twelve months.


6. Partial gastrectomy removes the "ulcer-bearing" and "acid-secreting" areas, and eliminates the possibility of malignant change.

7. Partial gastrectomy was attended by comparatively little shock, both operative and post-operative.

8. In view of the gross pathological change found, nothing less than partial gastrectomy was indicated or held out any hope of permanent cure.

ACKNOWLEDGEMENTS.

I desire to thank Professor MacCallum, Professor of Pathology of the University of Melbourne, for the preparation and photographs of these specimens, and for the facilities he extended to me personally; also Dr. Phyllis Wedlick, House Surgeon, Prince Henry's Hospital, Melbourne, for her assistance at these operations, and for her interest in these patients.



OBSERVATIONS ON THE INFLUENCE OF MOVEMENT ON SURGICAL SHOCK.

By I. DOUGLAS MILLER,
Sydney.

THE influence of movement on the production or exaggeration of surgical shock is not always sufficiently appreciated. This was very forcefully and tragically brought home to me in one of the first major intracranial operations that I performed.

The patient had a chromophobe adenoma of the pituitary, and at operation I was able to suck away the tumour and liberate the optic nerves and chiasm to my complete satisfaction. The operation lasted four hours, and at its termination the condition of the patient was almost the same as at the commencement. The

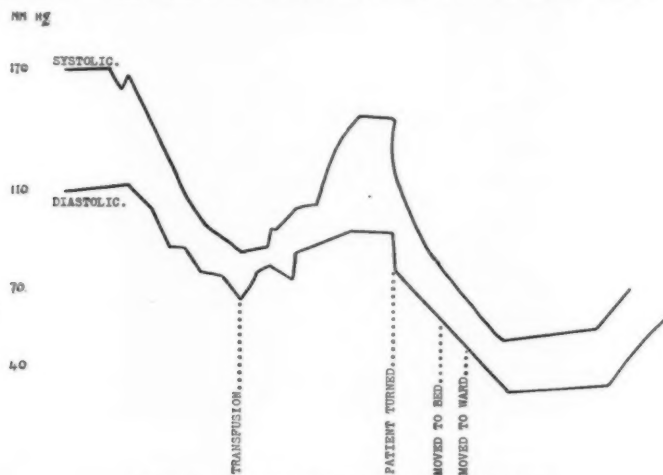


CHART I. Posterior cranial fossa decompression.

pulse was strong and steady. I felt confident of his well-being, and sent him in the usual way to the ward two floors away. He arrived there in a state of complete collapse, his pulse being impalpable, and before we could even marshal the ordinary shock remedies he was dead. Autopsy showed that inside the skull everything was in order, and there had been no bleeding.

This was clearly an instance of profound shock induced by movement.

The records of the next long intracranial case show the value of the salutary lesson we had learnt. (Chart I.)

In this case a patient had been desperately ill as the result of a tumour of the posterior fossa for over twelve months, and for four months had been confined to bed suffering from continuous vomiting and headache. She was a living skeleton, and it would not be possible to imagine a worse risk for any type of

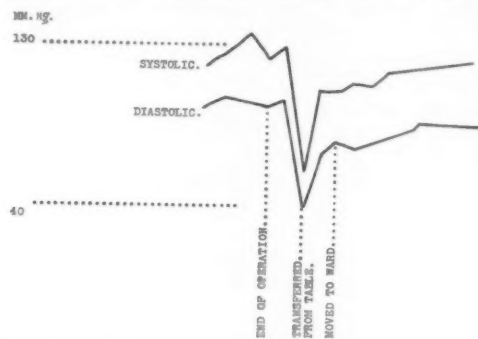


CHART II. Evacuation of cyst from the posterior cranial fossa.

surgery. I operated under local anæsthesia, and carried out the procedure extremely slowly, not allowing a drop of blood to flow. She went through this long procedure steadily, but a glance at the accompanying charts will show how easily a little indiscriminate movement would have proved fatal. When we

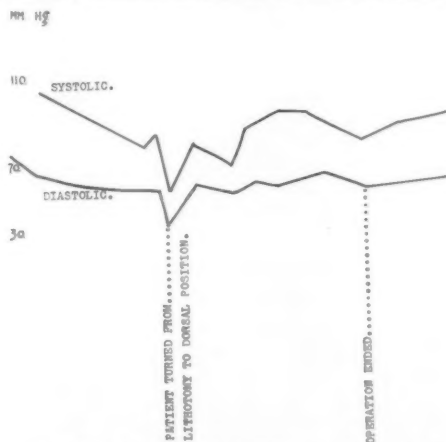


CHART III. Perineo-abdominal excision of rectum.

had finished, we moved her, as it were, by inches first onto her back, then onto the bed, and later back to the ward.

It will be seen that each stage of the movement upset her blood pressures very gravely.

At this time I had instituted the custom of bringing the bed to the operating theatre, and of transferring the patient directly to it.

The succeeding charts are very good examples of the same principle. It will be noticed how in all of them there is a sudden fall of blood pressure on the slightest movement. We have waited sometimes long periods before completing a movement or transferring the patient from the table.

This principle appears to be of paramount importance in dealing with intracranial conditions, and I feel convinced that the considerable series of cases we have had without a death, is largely due to the strict avoidance of sudden movement at the end of these long and exhausting procedures.

This, however, is not a lesson for head work only, but is applicable to any major surgery resulting in shock. Many a time is the wound of a collapsing patient hurriedly sutured, he is lifted onto a trolley and rushed

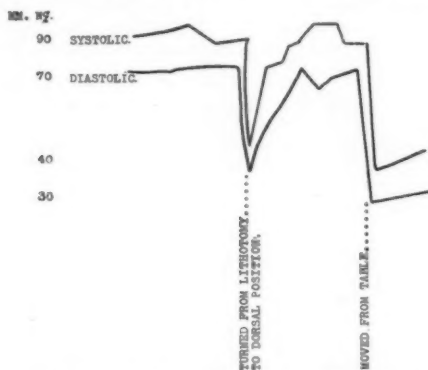


CHART IV. Amputation of penis and dissection of inguinal glands.

back to the ward in the most extreme collapse, often to die. I have come to look on that trolley ride almost with horror.

We are all familiar with the sudden collapse of a patient at the terminal part of the abdomino-perineal resection of the rectum when he is turned onto his side. This stage of the operation is quickly over, and the patient, having had no time to pick up from the first movement, is again turned, heaved onto a trolley and rushed back to the ward, and again lifted to bed. Is it any wonder that they so commonly arrive in the ward in the most profound collapse?

Chart III was taken while I performed the combined perineo-abdominal resection of the rectum. In this operation the degree of handling and the amount of tissue removed are exactly the same as in the abdomino-perineal, but we see here to what advantage the apprecia-

tion of movement can be put, and how this permutation may well be accompanied by a lower mortality.


During the perineal resection the blood pressure steadily fell. The patient was then gently rolled over, and there was a further drop. He was then placed in the Trendelenburg position and the abdominal part of the operation was performed. It will be seen that during this time his blood pressure picked up steadily, and was maintained until the conclusion of the operation. This illustrates the obvious advantage of getting the inevitable movement over early while the patient's resources are good, and moreover of having the patient for the terminal hour or so of the operation in the Trendelenburg position.

Chart IV was taken during and after the performance of an extensive gland dissection and removal of the external genitals, which shows unequivocally the effect of movement.

Once the importance of this principle is conceded, the problem is not difficult to cope with. First, it must be emphasized that the end of an operation is not necessarily the signal for hurried evacuation from the theatre of both patient and assistants. In Saint Vincent's Hospital the theatre is unlikely to be cleared for some hours after an intracranial operation. This is often very inconvenient, and the ideal solution of the problem is to have a small room adjoining the theatre into which the table may be pushed. At all costs the lifting of the patient to and from a trolley must be avoided. We had been doing this for some time by bringing the bed to the theatre and very gently transferring the patient to the bed; but we have lately had a trolley made which is for many operations easily utilizable as an operating table, and later in the ward it becomes the bed for as long as is necessary. The essential features of this trolley are legs at each end which may separately be raised or lowered, and wheels which are central. It is possible then to obtain the simple operating table positions. It is made a little wider than a table, and, with a good sponge rubber mattress, is readily utilizable as a bed for some hours.

ACKNOWLEDGEMENTS.

The records were taken by Dr. Speight, Medical Superintendent of Saint Vincent's Hospital.



Surgical Technique.

SOME POINTS IN UROLOGICAL TECHNIQUE, WITH A DESCRIPTION OF INSTRUMENTS.

By R. J. SILVERTON,

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Urologist, Prince Henry Hospital, Sydney.*

Ureteric Meatotome.

A most effective, simple and inexpensive meatotome is obtained by cutting the end off an old ureteric catheter, 5 to 6 gauge, and passing through it the copper stylette which is supplied with the catheter. While the instrument is being passed through the cystoscope the stylette is withdrawn so that it will not project from the catheter; when the catheter enters the visual field, an assistant pushes the stylette so that it projects from the catheter to exactly the length of the cut required in the ureteric mouth (Figure I). The Albarran's lever is then depressed



FIGURE I. Ureteric meatotome, author's design.

so that the copper wire enters the ureteric orifice. The lever is then turned up again so that the wire inside the ureter presses against and lifts up the anterior wall of the ureteric meatus; the other end of the wire stylette is connected up with an electric cutting machine. One touch on the foot switch and the anterior wall of the ureteric meatus is instantaneously cut through, and two thick, greyish edges, which do not bleed, are left. One can proceed immediately to the dilatation of the ureter.

A Urethral Nozzle Adaptor for a "Record" Syringe.

A urethral nozzle adaptor may be made from a simple conical piece of metal, channelled through; it will fit any "Record" syringe, and may be used for comfortable insertion in either the male or female external urethral meatus (Figure II). A special urethral syringe need not then be kept in stock. Moreover, the nozzle can be inserted well into the meatus, blocking the latter so well that

local anæsthetic or medicament fluids will not escape, as they are apt to when the usual blunt-nosed type of urethral syringe is used.

A New Ureteric Catheter.

In designing what may be called a standardized ureteric catheter certain principles should be observed. The total length of all ureteric catheters should be 75 centimetres. Unless this rule is observed, the point of the catheter may be withdrawn from the renal pelvis when the cystoscope is removed. This applies only to the male sex. In ureteric catheter drainage of an infected renal pelvis or dilatation of an obstruction at the uretero-pelvic junction it is necessary to be sure that the ureteric catheter remains in the renal pelvis after the cystoscope has been withdrawn. That many manufacturers have departed from the original zebra colouring is to be deprecated, since the zebra markings facilitate measurements, as seen in the cystoscopic visual field. French manufacturers have adopted the plan of placing their indicating bands at 5 centimetre intervals. These are unnecessarily frequent and often confusing, especially since, in order to cover

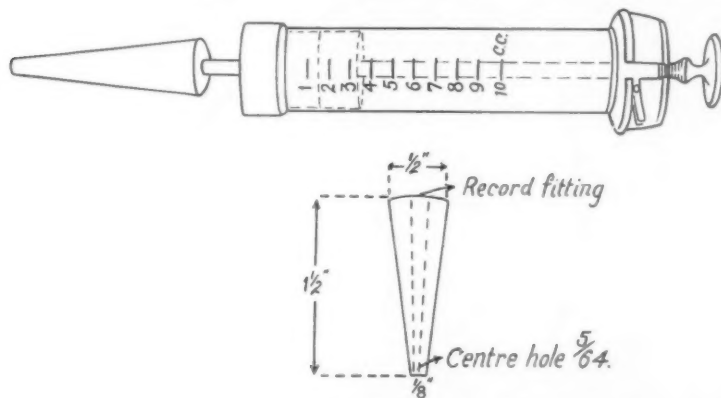


FIGURE II. Urethral nozzle adaptor for "Record" syringes.

a length of 50 centimetres, the multiplication of indicating bands up to five has to be repeated twice. German manufacturers multiply the bands only up to four markings and repeat this three times. Where pyelograms are made in the X ray room the number of bands are counted as they appear at the external meatus or vulva, according to the sex, and the simpler plan of marking catheters facilitates these measurements. On the catheter designed by me, and shown in Figure III, one band is placed at 10 centimetres, two are placed at 20 centimetres, and so on up to five bands at 50 centimetres; after this there is a long strip of one colour for 10 centimetres, followed by a long strip of a contrasting colour also for 10 centimetres; finally there is a short strip for 5 centimetres, making a total of 75 centimetres.

The Transvesical Operation for Vesico-Vaginal Fistula.

In performing a suprapubic transvesical operation for vesico-vaginal fistula, it is suggested that the author's prostatic cavity elevator can be used for elevating and for counter-pressure on the parts to be operated on. My operation for vesico-vaginal fistula has been described elsewhere,⁽¹⁾ and the instrument was described in THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY of January, 1934. In the fistula operation the elevator is first inserted into the vagina, but if the

elevating action is not so convenient here it can be inserted in the rectum, where it will be found to work excellently. The actual plastic operation on the fistula has been simplified and improved since the original description in 1929. The only instruments necessary are a long pair of toothed dissecting forceps and a long pair of scissors with slightly curved blades, preferably Thomson-Walker bladder scissors. The suturing can be done with any long slender needle holder and a small fully curved needle, but it is made easier by using a lateral Reverdin needle. Grasping the part with the toothed forceps and using firm counter-pressure with the elevator, one makes an incision through the vesical mucosa only,

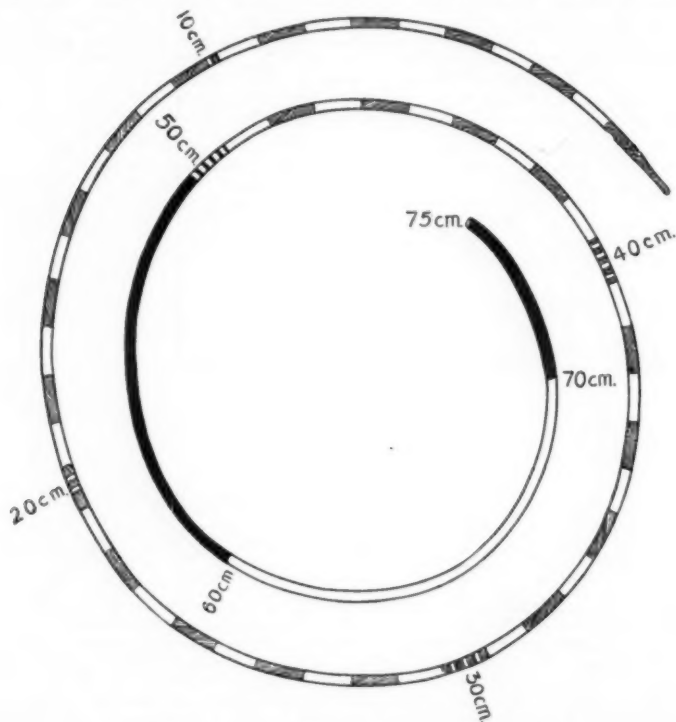


FIGURE III. The author's design of ureteric catheter.

by means of snipping along a line surrounding the edge of the fistula and about 0.5 centimetre distant from it. For this, the scissors are pointed downwards (Figure IV). The points of the scissors are then turned upwards and the surrounding vesical mucosa is undermined by carefully snipping for about one centimetre all round (Figure V). If the toothed forceps are made to grasp the tissue immediately beneath this dissected-up mucosa, the forceps will be found to hold quite a thick layer of bladder muscle (Figure VI). This muscle is sutured with a continuous number 3 plain catgut suture, so as to convert what was previously a circular or oval opening into a straight suture line (Figure VII, above). This is then covered and completely protected from urine by means of a

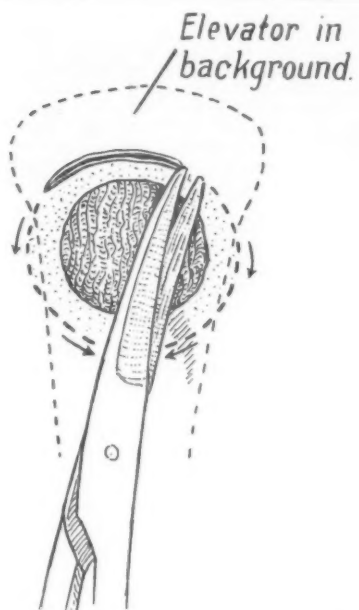


FIGURE IV. Step 1 in the transvesical repair of vesico-vaginal fistula. Note the dotted outline of the elevator lying either in vagina or rectum.

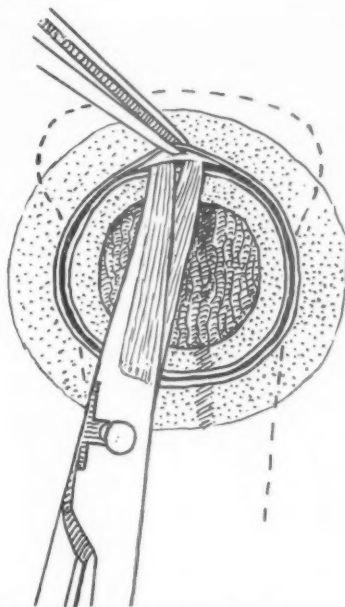


FIGURE V. Step 2 in the repair of vesico-vaginal fistula. Dissecting up the vesical mucosa for about one centimetre all around.

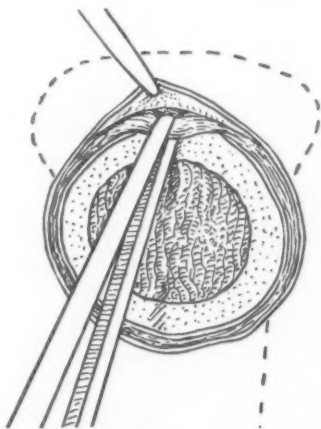


FIGURE VI. Step 3 in the repair of vesico-vaginal fistula. Grasping the thick muscle layer under the vesical mucosa.

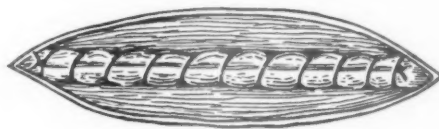


FIGURE VII. Above: Suture of muscularis with continuous plain catgut. Below: Suture of mucosa with continuous fine catgut.

continuous suture of number 1 plain catgut uniting the edges of the bladder mucosa (Figure VII, below). The deepest portions, namely, the vaginal edges of the fistula, may be brought together before the muscle layer is sutured, but this is not absolutely necessary. A number 24 French de Pezzer drain is left in the suprapubic wound, and a 16 French de Pezzer drain in the urethra. At the end of two weeks the suprapubic drain is removed, but the urethral drain is left *in situ* until the suprapubic fistula closes, when the patient will urinate.

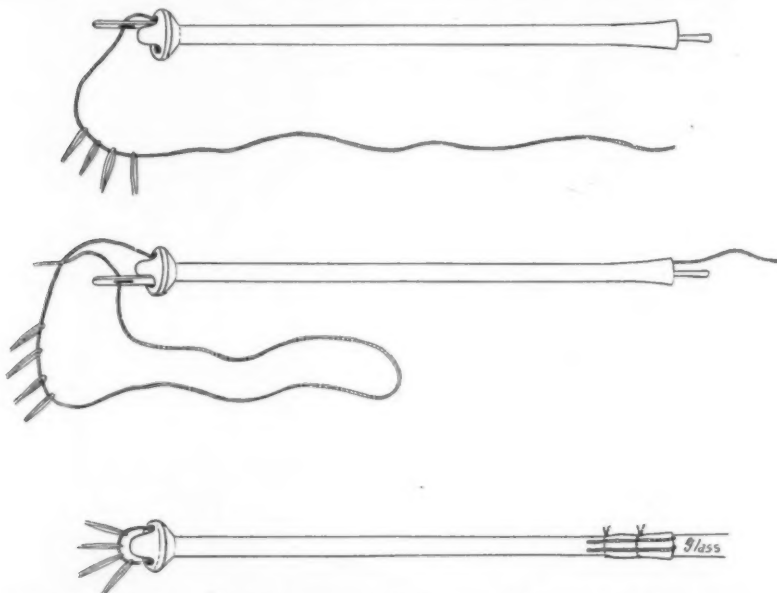


FIGURE VIII. Above: Thick silk passed through large de Pezzer drain by means of a probe 29 centimetres long. The silk is then passed through the looped threads on the radium needles. Middle: The silk thread is now withdrawn through the drain by means of the probe. Below: Both ends of the silk thread are drawn on as far as they will go, and the ends of the silk are then tied securely in place.

Radium Needle Implantation in Vesical Neoplasms.

In draining the bladder after the suprapubic implantation of radium needles into vesical neoplasms, it is very important, since there is generally a good deal of sloughing of the growths, to keep the patient dry and comfortable during convalescence. I have previously described an operation for draining the bladder in these cases.⁽²⁾

The method now used is to have the loops of thread in the radium needles only about 10 centimetres long, and to pass through these loops a long piece of number 6 silk, which is very stout. This length of silk has previously been passed right through a very large de Pezzer catheter (about number 34 French) by means of a long probe especially made for this purpose (Figure VIII, above). The silk is then passed through the needle loops and then, by means of the long probe, back through the de Pezzer catheter again, where both ends of the silk are anchored (Figure VIII, middle and below). At the end of the required time (seven to ten days) the large de Pezzer drain with the attached silk, threads and

needles is removed with the patient under a little ethyl chloride anæsthesia, and a number 24 French de Pezzer catheter may be inserted. After another week this drain is removed, and a number 18 de Pezzer drain is inserted. During all this time the patient has been freely irrigated. At the end of about three weeks (from the time of the operation) the number 18 French de Pezzer drain can be removed and a catheter inserted into the urethra. The wound will heal completely a few days later, and it will be found in most cases that the patient is dry and comfortable most of the time.

The Phenolsulphonephthalein Test: A Simple Clinical Method.

The following is a simple method of carrying out the phenolsulphonephthalein test. The nurse is instructed to inject one cubic centimetre of the dye into the outer side of the deltoid muscle with a hypodermic syringe at any convenient hour, say, 6 a.m. This test, being independent of the effect of fluid and food ingestion, may be applied at any time of day.



FIGURES IX TO XII. Showing different results obtained with the phenolsulphonephthalein test. Figure IX shows very poor renal efficiency. Figure X shows low medium efficiency. Figure XI shows high medium efficiency. Figure XII shows normal renal efficiency.

The urine is collected by catheter in a sterile medicine bottle for seventy minutes, and this is marked number 1; it is then collected for sixty minutes, the second bottle being marked number 2. When the surgeon arrives he simply dilutes each specimen to one pint, since a pint jug is always available in a hospital. This is alkalized with a little *liquor potassæ* and stirred up. Two ordinary medicine glasses of approximately equal size are now taken, and each is filled with a sample from each diluted specimen. They are held up to the light and glass number 1 is compared with glass number 2. A normal kidney should excrete much more strongly in the first hour than in the second; thus the first glass will be at least a medium magenta colour, while the second may be only a pale or medium pink. With a very low efficiency there may be no colour at all in the first glass and only a pale pink in the second (Figure IX). As the renal function improves the test will give pale pink in each glass and later medium or even deep pink in each glass (Figure X). Later still a light magenta

colour will appear in the second glass, showing that the kidney is now starting to work well, though not quickly enough (Figure XI). It is not until the colour is deeper in the first glass than in the second that we can judge the renal efficiency to be normal (Figure XII).

This simple method can be done on the spot clinically, is of valuable graphic interest to students and nurses, and obviates the use of a colorimeter. Accurate readings with tests of renal excretion are unnecessary in surgical cases, as so many other factors have to be taken into account; and, as a result of fifteen years' experience, I have found this simple clinical method of carrying out the phenolsulphonephthalein test to be quite reliable.

References.

⁽¹⁾ R. J. Silverton: "The Transvesical Operation for Vesico-Vaginal Fistula", *The Medical Journal of Australia*, October 26, 1929, page 596.

⁽²⁾ R. J. Silverton: "The Treatment of Carcinoma of the Bladder and Prostate by Radium Implantation", *The Medical Journal of Australia*, June 16, 1934, page 776.

Case Reports.

A CASE OF ŒSOPHAGECTOMY (TOREK'S OPERATION) FOR CARCINOMA AND ŒSOPHAGOPLASTY.

By E. S. J. KING,
Melbourne.

DURING 1935 a number of patients with carcinoma of the thoracic part of the Œsophagus have been treated by operation. Some of these have been referred to already,⁽¹⁾ and one has been recorded in detail.⁽²⁾ The purpose of this note is to record a second operative success and to indicate some of the problems that arise in these cases.

This patient lived for six months after the operation, and finally succumbed to a condition not related directly either to the Œsophageal carcinoma or to the operation. The result obtained in this case, together with a third, which will be referred to again, seems to indicate that the modifications of technique which have been employed at the Royal Melbourne Hospital are significant. At the same time, it is apparent that there are further problems to be solved beyond the mere technical difficulties of the Œsophagectomy.

Although the result was unsatisfactory, this case demonstrates very clearly some of the difficulties and is therefore reported.

The patient, a male, aged fifty-three years, attended the out-patient department first on October 17, 1935, and gave a history that he had had difficulty in swallowing for three months. At first this difficulty was noticed only at times and with solid food. For three weeks it had been much worse, and regurgitation of food and saliva had occurred. There had been no pain in the chest. Recently he had lost 12.6 kilograms (two stone) in weight.

His past history was unimportant, except that in 1921 he was operated on for a perforated peptic ulcer.

His general condition was good. His chest was clear (on ordinary examination), his systolic blood pressure was 140 and his diastolic pressure 90 millimetres of mercury. He was edentulous.

X ray examination (barium swallow) revealed an obstruction of the Œsophagus opposite the sixth and seventh thoracic vertebrae. There was a definite filling defect on the right side of the tube (Figure 1), but there was no deviation of the organ from its normal position. Œsophagoscopy was performed, and a growth was found projecting into the lumen about 27.5 centimetres (eleven inches) from the upper alveolar margin. A piece of tissue was removed for microscopic section. This did not show any malignant tissue, but in view of the other findings the negative result was disregarded.

His renal function was good, and X ray examination of his chest revealed no demonstrable lung or mediastinal abnormality. The Wassermann test gave no reaction. Blood examination showed the erythrocytes to number 4,860,000 per cubic millimetre, the hæmoglobin value was 80% and the sedimentation index (Cutler) was 1.5 millimetres.

On November 8 a gastrostomy of the Janeway type was performed under local anaesthesia. A pneumothorax on the left side was induced by the introduction of air on every second day.

On November 12, under "Avertin" and local ("Novocain") block anaesthesia, a left paravertebral incision (5.0 centimetres or two inches from the mid-line) extending from the fourth to seventh ribs was made. A small piece (six millimetres) was removed from each of these ribs, and the corresponding intercostal vessels and nerves were doubly ligated and sectioned. The wound was then sutured. The patient recovered from this procedure quite well, but during the next week he seemed in poor spirits. He improved greatly, however, after the exclusion of numerous and lachrymose relatives. X ray examination of the chest showed the upper part of the lung to be collapsed, but the lower lobe was not collapsed, apparently owing to adhesion to the parietes (Figure III).



FIGURE I. Antero-posterior skiagram showing a filling defect in the right side of the oesophagus opposite the sixth and seventh vertebrae. There is marked constriction of the lumen.



FIGURE II. Lateral skiagram showing the filling defect in the posterior wall of the oesophagus.

A week later, on November 19, removal of the oesophagus was undertaken. Under "Avertin" and gas and oxygen anaesthesia, administered by Dr. R. Howden, with the patient lying on his back, an incision 7.5 centimetres (three inches) in length was made along the lower part of the anterior border of the left sternocleidomastoid muscle. Dissection was carried posteriorly lateral to the pretracheal muscles and the thyroid gland and medial to the carotid sheath till the oesophagus was found, then caudally into the mediastinum as far as was possible with ease.¹ This wound was then covered by a dressing, and the patient was turned and placed in the right lateral position.

The sutures were removed from the wound made a week previously. An incision along the line of the seventh rib was made, communicating posteriorly with the lower end of the paravertebral wound. The incision was carried down through the flat muscles and the intercostals of the seventh space. The pleura was then incised along the seventh intercostal space, and, the old wound being

¹I have found since writing this that Kuettner and Torek both have suggested performing the cervical part of the operation first.

opened, the pleural incision was continued upwards to the third rib. A rib spreader was introduced. The upper lobe of the lung was collapsed, but the lower lobe was adherent to the parietal wall. The adhesions were separated, and the lung then collapsed completely down to the mediastinum. About 300 cubic centimetres (half a pint) of slightly blood-stained fluid were evacuated from the pleural cavity. No nodules could be felt in the lung, nor was any mass or enlarged gland felt at the hilum.

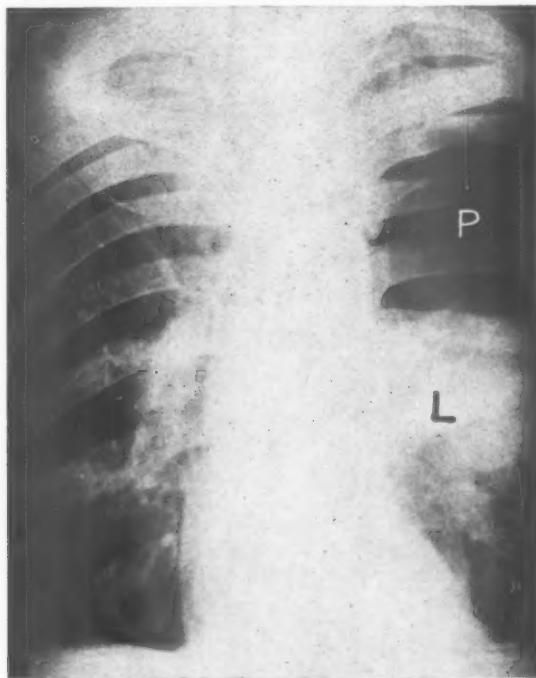


FIGURE III. Skiagram of the chest after pneumothorax. It was found at operation that the lower lobe, which is here still expanded, was held to the parietes by numerous adhesions. P indicates the part of the pleural cavity filled with air, and L the lower part of the left lung.

An incision was then made in the mediastinal pleura just anterior to the aorta. The œsophagus was identified, and the tumour found about an inch below the arch of the aorta. It extended for about 3.75 centimetres (one and a half inches) caudally. This was gradually freed, both sharp and blunt dissection being employed. It was found to be adherent to the right pleura (this was anticipated, and is to be correlated with the X ray appearance), and portion of this had to be sacrificed in order adequately to remove the growth. The opening in the right pleura did not appear to embarrass the patient, and moist gauze was placed in the opening temporarily. The œsophagus was then freed up to the aortic arch and down to the diaphragm. Oesophageal vessels

were clamped and sealed with the electric cautery. The vagi were cut opposite the left bronchus. The lower end of the œsophagus was doubly ligated and cut by the electric cautery between the ligatures. The lower end was invaginated into the stomach and a purse-string suture was placed in the upper part of the stomach and the diaphragm to occlude the opening. The other cut end of the œsophagus was covered by a rubber sheath, which was tied securely to it.



FIGURE IV. Photograph of the specimen after removal. The growth occupies the middle third of the piece of œsophagus. Its general conformation corresponds with the X ray findings. The surface of the growth is irregular, but covered by mucosa except for a small ulcer. Note the transverse wrinkling of the mucosa above and below the tumour.

Dissection was then undertaken above the aortic arch, and the œsophagus was brought round the arch and then, by passage of a long forceps down from the neck wound, this grasping a tie on the œsophagus, the œsophagus was brought up into the neck.

A drainage tube was passed into the pleural cavity through a stab incision in the eighth intercostal space, just posterior to the posterior axillary line. The

wound was closed by pericostal sutures, a running stitch in the muscles and interrupted silkworm gut sutures in the skin.

The patient was then turned onto his back once more. The site of section on the œsophagus was determined, and this was measured on the chest. At the appropriate space an oval piece of skin was excised and the subcutaneous tissues were tunnelled from this site up to the incision in the neck. The œsophagus was drawn through the tunnel and the wall sutured to the subcutaneous tissues. The œsophagus was then sectioned by the electric cautery, and the mucosa was sutured to the skin. The neck wound was closed, a drainage tube being passed down into the superior mediastinum. Dressings were applied, and the patient was returned to bed. The operating time was one and a half hours, and at the end of the operation the pulse rate was 140.



FIGURE V. Photomicrograph of a piece of the tumour. It is a typical cornifying epidermoid carcinoma. $\times 450$.

Immediately after the patient's return from the operating theatre, administration of fluid was commenced by the subpectoral and rectal routes as well as a continuous drip into the gastrostomy. A transfusion of 900 cubic centimetres (thirty ounces) of blood was also given. The drainage tube in the chest was connected to a negative pressure apparatus.

The patient's general condition was excellent, his pulse rate being 120 on the first evening and gradually falling, except for a time on the third evening, when, for a few hours, it became more rapid and quite irregular. This was due to extrasystoles, but next day when an electrocardiogram was obtained, it was again just under 120 and regular. His temperature, which was 39.3°C . (101°F .) on the first evening, gradually fell, to become normal on the eleventh day.

Drainage of 60 cubic centimetres of blood-stained fluid occurred from the chest in the first twenty-four hours, and 40 cubic centimetres on the second day, after which there was no further drainage and the tube was removed. On the

third day the left lung was found by both clinical and X ray examinations to be completely expanded.

The right side of the chest was clinically clear until the fourth day, when dulness was detected at the base of the lung, together with absent breath sounds. Three hundred cubic centimetres of sero-sanguineous fluid were removed. Signs were still present on the sixth day, and 80 cubic centimetres were removed, after which the chest remained clear. Culture of the fluid gave no growth of organisms. The sutures in the neck wound were removed on the third day, and those in the thoracic wound on the tenth day.

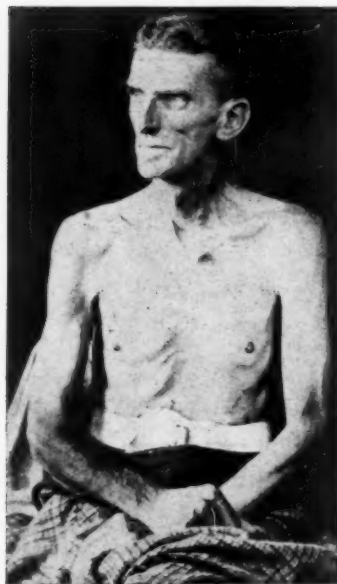


FIGURE VI. Photograph of the patient taken three weeks after oesophagectomy. The oesophageal stoma is apparent just below the inner extremity of the left clavicle. The gastrostomy opening is covered by a belt.



FIGURE VII. Photograph of the patient showing the oesophageal cup in position. The tube from its lower end is connected with the gastrostomy tube. The opening of the gastrostomy was placed towards the right side of the abdomen, so as to allow sufficient room for the subsequent oesophagoplasty.

The patient was allowed out of bed on the seventh day. There was very little discharge from the oesophageal opening on the first two days, and on the third a specially fitting cup, with an outlet to which a rubber tube could be attached (Figure VII), was placed over the opening, and he was allowed to swallow fluid. This was caught in a kidney dish, and when the flow was clear of rusty mucus—after two or three mouthfuls—the cup was connected to the gastrostomy tube. On the fourth day he thoroughly enjoyed a draught of beer (Figure VIII). This passed into the stomach without difficulty or leakage. Most of the feeds were given through the gastrostomy tube, but the patient was allowed to take by mouth anything that he enjoyed particularly. It seemed that the amount of air, normally swallowed, propelled the material into the stomach,

since it showed no inclination to bank up in the cup or connecting tube. His ability to swallow was a great comfort to the patient at this stage, as the weather during this week was extremely hot and oppressive.

The specimen comprised a portion of œsophagus 8.75 centimetres (three and a half inches) long, in the middle of which there was a hard mass 3.75 centimetres (one and a half inches) in length and distending the organ slightly. When the organ was split longitudinally the mucosa above and below the indurated area was normal, though showing some transverse wrinkling. The middle zone was considerably thickened on one side of the tube, and here the lumen had been much reduced. The mucosa over the mass, except for a small ulcer of 3.0 millimetres (one-eighth of an inch) in diameter, was irregular but smooth (Figure IV).

Microscopically the tumour was a typical epidermoid carcinoma, showing prickly cells and characteristic cell nests.

Certain features in the management of carcinoma of the thoracic œsophagus are exemplified by this case. If surgical removal of the growth is to become practicable, then it is desirable to pay special attention to the pre-operative diagnosis, not only of the lesion, but also, when possible, of its position in the wall of the œsophagus, its extent *et cetera*. For example, the observation that the growth was mainly on the right wall of the tube was correlated at operation with adhesion to the right pleura, and this was then promptly dealt with. In another case in which thoracotomy was performed, an extremely extensive involvement of the right pleura and of the tissues round the azygos vein was associated with traction of the œsophagus, as shown in the skiagram, over towards the right side, and this should in itself have enabled us to decide on the inoperability of the growth without our having to resort to thoracotomy. In many cases the X ray appearances do not help us to form an opinion concerning operability of the growth, but I am convinced that this is partly because of the as yet insufficient correlation between the appearances and operative findings. Careful and complete radiological examinations, since they are the principal means of pre-operative diagnosis of these details, should therefore always be made.

Concerning the operation, attempts were made here to minimize the well-recognized dangers of the procedure. Post-operative shock was diminished in three ways: (i) by the production of a preliminary pneumothorax (in this case incomplete), (ii) by the division of the operation into two stages, and (iii) by the ordering of the procedure so that there was the minimum of movement of the patient during anaesthesia. These points do not require elaboration. The pneumothorax which has been suggested by several surgeons, helps also in that the presence of adhesions is recognizable before the chest is opened. Movement of the patient, who is undergoing a formidable operation, can always be seen to produce or to accelerate the onset of signs of shock, and the curtailing of such movement is in my opinion of extreme importance; but another advantage of the order of procedure (as described above) is that failures in the maintenance



FIGURE VIII. Photograph of the patient drinking, the fluid passing into the stomach by way of the cup over the stoma and the connecting tubes. Although the tube shown here is unnecessarily long, there was no difficulty or leakage.

of asepsis, which are liable to occur when the patient is moved, are obviated. It is unnecessary to reiterate the statement of others that the elimination of infection plays a great part in the recovery of these patients. The grave, indeed, usually fatal, character of mediastinitis is in itself sufficient emphasis of its importance. In this regard, protection of the free end of the œsophagus by a rubber sheath is too obvious a safeguard to require any apology.

œsophagoplasty.

The patient progressed very satisfactorily after the œsophagectomy. Although his diet was adequate in amount, he did not gain in weight; however, he did not lose weight, and his general condition, as shown by his clinical state, blood count and sedimentation rate, improved considerably.

It was decided, therefore, to proceed with the œsophagoplasty. There was, however, extremely little subcutaneous fat on the chest wall, the skin being very inelastic, and it was very doubtful whether satisfactory flaps could be obtained to cover a skin tube. He stated that he had always been thin about the chest. In addition, he had lost a great deal of weight, some before operation (see above) and another 6.3 kilograms (one stone) during, and immediately after, the operations. He was given injections of insulin (10 units twice a day), and immediately his weight increased, and the skin became much more pliable and elastic.

From previous experience of œsophagoplasty (for stricture of the œsophagus) it was thought that an operation of the Lexer-Wullstein type (jejuno-dermato-œsophagoplasty) would mean submitting this patient to too serious a procedure. An operation of the Bircher-Rovsing variety seemed to be most favourable. Having had considerable trouble previously with a gastric fistula, I decided to adopt the method suggested by Lillenthal.⁴⁰ The gastrostomy opening was disregarded, because, being small, stricture at the muco-cutaneous junction was quite probable, and, as has been said by those who have encountered this complication, a stricture is "most annoying".

A barium meal was given through the gastrostomy tube and observed under the fluoroscopic screen; the stomach was seen to be large and to extend well into the left hypochondrium.

On January 10, 1936, the first stage of the plastic operation was performed. Under gas and oxygen anæsthesia, with local ("Novocain") infiltration, an opening was made in the abdominal wall at the rib margin through a T-shaped incision just lateral to the left *rectus abdominis* muscle. The stomach was found easily, and a cone of it was brought out through the wound. It was sutured to the various layers of the abdominal wall, about 5.0 centimetres (two inches) being allowed to protrude. Two parallel incisions, 6.25 centimetres (two and a half inches) apart, were now made in the skin in a cranial direction, commencing at the transverse limb of the T-incision and passing upwards for 15.0 centimetres (six inches). Slight undercutting of the margins of the middle part allowed the skin tube to be formed.

The part of the stomach cone which would join most easily with the lower end of the skin tube was determined, and a circular area of peritoneum and muscle—about 2.5 centimetres (one inch) in diameter—was excised. Care was exercised not to open the mucosa. The muscular layer was sutured to the skin margin of the lower end of the tube. In this fashion a diaphragm of mucosa separated the cavity of the stomach from the skin tube.

The skin tube and the stomach cone were then covered. The lateral edges were undercut so that they could be united over the tube. Tension was greatly diminished by means of relaxing incisions.

The patient was not at all disturbed by this procedure, the only difference being that, whereas he had been able to take from 420 to 480 cubic centimetres (fourteen to sixteen ounces) of food at each feed, for a time after operation he was able to take only 300 cubic centimetres (ten ounces) with comfort. This condition of affairs gradually improved, until after a few days he was able to take the ordinary amount.

The wounds healed satisfactorily except that a small patch of gangrene developed at the suture line about 7.5 centimetres (three inches) above the junction of the stomach with the skin tube. As it was certain that the skin tube would open here—over an area corresponding to the area of superficial skin loss—it was decided to complete the skin tube and use the lower (inevitable) opening as the site for introduction of the œsophagoscope.

On January 21, under "Avertin" and local infiltration anæsthesia, a skin tube extending from the upper end of that already constructed to the œsophageal opening was made. During the next few days this healed very satisfactorily, and the small piece of dead skin in the region mentioned above separated. The tube was here open for the distance of 2.5 centimetres (an inch). No satisfactory skin was available in the vicinity for the reconstruction of this open part.

The diaphragm between the skin tube and stomach was excised by diathermy through an œsophagoscope, and it was possible to pass an instrument or tube easily into the stomach. On March 3 the junction of the skin tube to the cervical œsophagus was effected, though a small fistula remained.

The patient, who seemed to be very well, was discharged from hospital. It was proposed to complete the skin tube when the tissues had recovered from the previous manipulations.

He was readmitted on June 2, having developed a "cold" and an associated cough. He became worse rapidly, and died on June 4.

Post mortem examination revealed an "influenzal" bronchopneumonia and associated severe tracheo-bronchitis. The left lung was adherent to the parietal wall by numerous fine fibrous adhesions. The mediastinum was clear. There was a small subpleural plaque about 1.25 centimetres (half an inch) in diameter and six millimetres (quarter of an inch) thick on the right side posterior to and below the right bronchus. This was shown to be carcinomatous, apparently as a result of inadequate removal of involved right pleura at the time of operation. No metastases, however, were found in the chest, abdomen or neck.

The œsophageal skin tube was healthy, and the junction with the stomach was satisfactory and free from any stricture.

Discussion.

The untoward result in this case at such an early stage cannot be regarded as due to the operation. Of course, death would have resulted ultimately from the continued growth of the small "recurrence". In the ordinary course of events, however, this would not have been sufficiently extensive to give serious trouble for some considerable time.

A short time before the death of this patient another patient on whom œsophagectomy had been performed died of an "influenzal" pneumonia⁽³⁾ some time after the operation.

It would appear that these patients have little or no resistance to traumata of various kinds and especially to infections. That this state is not due necessarily to their age nor directly to any operative procedures that they have sustained is shown by the observation of a similar lack of resistance in other, including young, patients who have non-malignant œsophageal obstruction.


This question of the poor general condition of patients with œsophageal disease is a more serious and difficult one than any technical problem presented by the operation. Two factors are prominent in this respect, the inevitable loss of at least some of the saliva and the inadequacy of gastrostomy diets. If both these difficulties are to be overcome, constant skilled attention is necessary, and must be continued until a new œsophagus has been constructed. It remains to be seen whether other factors are not also operative. This will be discussed again.

Summary.

A case of carcinoma of the thoracic œsophagus, on which œsophagectomy by the transpleural method had been performed, is described. An antethoracic œsophagoplasty had been almost completed when the patient died of pneumonia.

At *post mortem* examination a small subpleural nodule on the right side was found, but otherwise no metastases were found.

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- ⁽⁴⁾ H. Lillenthal: "Thoracic Surgery: The Surgical Treatment of Thoracic Disease", 1925.
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The Australian and New Zealand Journal of Surgery.

All articles submitted for publication in this journal must be typewritten and double or treble spacing should be used. Each article should conclude with a brief summary and statement of conclusions. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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THE SEX FACTOR IN CLINICAL SURGERY.

FAMILIARITY with the law of averages is one of the essentials of successful clinical diagnosis, and a knowledge of probability is the more complete when we take into account the effect of the sex factor upon the incidence of particular diseases. This is specially true of those diseases or diseased conditions which do not affect directly the reproductive system and which are not, therefore, obviously dependent upon anatomical and physiological differences in the genitalia. It is at first sight difficult to see why sex should affect the incidence of certain conditions. Why, for example, does hour-glass stomach occur twenty times as often in women as in men, and why do perforations of gastric or duodenal ulcers occur fifty times more often in men than in women? Why do eighty of every hundred carcinomata of the lung occur in men, and why are branchial cysts and fistulæ commoner in the female, while congenital pyloric stenosis occurs ten times more frequently in male than in female infants? Why are congenital cerebral aneurysms confined to women, and why do anatomical variations in the carotid arteries

occur more frequently in women than in men (W. Trotter), while cirroid aneurysms of the scalp appear to occur solely in males? Why are hypernephromata seen in men so much more often than in women? Why is thrombo-angiitis chiefly a masculine disease, and why do congenital dislocations of the hip occur more often in girls?

If we consider the sites of occurrence of malignant disease throughout the alimentary canal, we find that carcinoma exhibits a very definite sexual selection. Thus carcinoma occurring in the lip, tongue, larynx, throughout the greater part of the œsophagus, in the stomach and in the caecum is most often encountered in men. In the hypopharynx those growths which occur behind the plate of the cricoid cartilage are limited almost exclusively to women; while just opposite this site and on the posterior wall occur growths which, although less common than anterior growths, almost invariably attack the male subject.

The answers to these and such questions do not leap to the eye, and so much may depend upon them that we hope that the raising of the questions here may be sufficiently provocative to call forth some suggested explanations.

Diseases of the thyroid gland are approximately ten times as common in women as in men, and the reason may be the interrelation between the thyroid and the other internally secreting glands, including particularly the gonads; but this explanation would not appear to account for the relatively more frequent occurrence of hour-glass stomach in women and of perforation in men. The emancipation of woman has done much to remove differences in the habits of life of the male and female. The amount of alcohol consumed by women today must approach that taken by the male, and woman frequently takes it in a particularly potent form as cocktails. Today also woman probably smokes as many cigarettes as her male companion; yet while both may suffer from gastric ulcers, she develops an hour-glass stomach and he a perforating ulcer. Intestinal stasis has been said to be commoner in women than in men, but it is doubtful whether this is so today, since modern women indulge in much more exercise than their mothers did before them.

The explanation of the much more frequent occurrences of carcinoma of the breast in women than in men may be apparent, and there is reason to think that the predominance of biliary calculi in women can be satisfactorily explained. Stasis in the bile ducts consequent upon visceroptosis, cholesteræmia and the various other factors suggested in the textbooks enables us to rationalize this occurrence. The reasons

suggested for the predominance of acute intussusception in boys and of diverticulitis in men are also satisfying. Anatomical reasons would appear to account for the greater frequency of vesical calculi in males and of pneumococcal peritonitis in women, but the reason why dermoid tumours of the *rectus abdominalis* occur in women and why *linitis plastica* is a disease of men is as obscure as that of the other examples that have been mentioned.

Occupation as a factor influencing the incidence of a particular lesion in either sex cannot be said to enter obviously into the examples to which reference has been made, but it is apparent that this factor is important and accounts for the much more frequent occurrence in men than in women of such a condition as internal derangement of the knee. Occupation, however, is but one of the several factors which affect the incidence of any particular disease, and, as may be gathered from the examples quoted, not the least important of these factors would appear to be the sex of the subject. It is interesting to speculate whether the recent entry of women into occupations previously the exclusive province of the male will affect what has hitherto been regarded as the occupational incidence of certain diseases by bringing to bear on them the obscure, but in many cases potent, sex factor.

LAMBERT ROGERS.



Surgey in Other Countries.

[In this column will be published short résumés of articles likely to be of practical value from Journals published in other countries and not readily accessible to surgeons in Australia and New Zealand.]

CONGENITAL FALCIFORM DETACHMENT OF THE RETINA.

H. Weve: "Concerning 'Ablatio Falciformis Congenita'", *Archiv für Augenheilkunde*, December, 1935, page 371.

THE author describes a newly recognized anomaly, ignorance of which has led in the past to its confusion with glioma and to consequent enucleation. This condition is congenital and familial, and occurs in various stages. The author describes the condition as it appeared in fourteen eyes of eight children. In none of these were any signs of inflammation present. When bilateral, the condition is accompanied by nystagmus, convergent strabismus and defective vision. Its symmetry, when it is bilateral, suggests that its origin is not connected with foetal inflammation or hæmorrhage. Two extreme states are described, in one of which scarcely noticeable anomalies of the retinal vessels were found, and in the other an extensive detachment of the retina, with adhesions of adjacent folds, proliferation and the picture of pseudo-glioma. The most remarkable and characteristic picture, however, is an intermediate form with a sickle-shaped fold of the retina which Weve entitles "congenital falciform detachment of the retina". A retinal fold is found which sometimes resembles a sail, and which spreads from the optic disk towards the region between the lens and the ciliary body. This fold may be attached to a persistent hyaloid artery, but is vascularized by branches from the central retinal artery.

The fold occurs in the inferior temporal quadrant of the retina, and in this respect resembles retinal dialysis and certain large retinal cysts. More recently Ida Mann, in a paper on the same anomaly, described a fold in another meridian (see *The British Journal of Ophthalmology*, December, 1935, page 641). In Dr. Mann's opinion the condition should be entitled "congenital retinal fold".

Weve considers that this anomaly arises as the result of an adhesion between the developing retina and the tissue surrounding the lens. Probably there is an adhesion of one portion of the primary vitreous to the adjacent inner layer of the optic cup. This means an absence of the secondary vitreous which should exist at this junction. Only the inner layer of the optic cup is involved. Shrinkage of connective tissue and/or the pull from the growing eye raises a fold of retina. The size of the adhesion and its time of origin will determine whether a sector-shaped detachment, a simple retinal fold or a total detachment will appear. The tension may be great enough to draw in the nerve so that it is covered by the retinal fold.

VERTEBRAL HÆMANGIOMA.

L. Lamy and L. Weissman: "*L'angiome vertébral*", *Revue d'orthopédie et de chirurgie de l'appareil moteur*, March, 1936, page 121.

L. LAMY AND L. WEISSMAN, orthopædic surgeons at the Foch Hospital, state that although it was totally unknown until ten years ago, vertebral hæmangioma occupies today in any discussion of spinal affections the place that it merits.

In 1926 Perman for the first time recognized radiologically, and verified histologically, a vertebral angioma. About twenty more or less proved cases have been published; nevertheless, the authors think that the condition is commoner

than is believed, especially as in one of their own cases it was confused with Kümmell's disease because the patient fell from a height. Schmorl found angiomas present in 10% of the 10,000 vertebral columns which he examined. Junghans and Topfer in two separate observations found a slightly higher percentage. The tumour is essentially benign, and may not ever cause symptoms or signs. Despite its proved anatomical frequency, the clinical frequency is rare; therefore, the condition is of medico-legal importance, because a slight injury may initiate the first symptoms and a compression fracture be diagnosed incorrectly.

The thoracic vertebral bodies are the most frequently involved; and the tumour may involve the pedicles. A very important clinical feature is that frequently there exist other angiomas (cutaneous, hepatic, splenic *et cetera*). This should always suggest a possible diagnosis in the presence of obscure spinal symptoms. The *post mortem* findings are those of typical capillary or cavernous angiomas. In advanced cases the angiomatous tissue proliferates, traversing the osseous tissue, so that eventually the medullary canal is encroached upon, compression of the cord being caused. Indeed, other than by an accidental



Typical hæmangioma of first lumbar vertebra. Note the "blown out" body (*soufflée*) and honeycomb appearance.



The hæmangioma has involved the pedicles. Since 1927 the X ray pictures made every six months have shown that the vertebral condition is absolutely stationary.

X ray finding of the disease, the patient is first brought for diagnosis and treatment by root or cord pressure symptoms. Kyphosis and scoliosis eventually develop. X ray findings are absolutely characteristic (see Figures 1 and 2). It suffices to have seen such X ray pictures only once to recognize the disease again.

The affected vertebræ as a whole conserve their general outline; these outlines are distinct, but may be slightly less marked; the actual outline is never deficient. The intervertebral spaces are unaffected, but the general form of the body is changed so that in the antero-posterior view it is enlarged laterally as if it were blown out. Sometimes in the same view the upper and lower surfaces sink in so that two double concave surfaces (upper and lower) result, producing a vertebral body like that of the fish. Most authorities describe the antero-posterior X ray appearance of the front wall of the body as "bubbly" in character. This is due to a honeycomb effect. This sieve-like appearance, as if "riddled by shot", is pathognomonic of angiomas (Figure 1). Pott's and Kümmell's diseases, metastatic carcinomatosis *et cetera*, give a different appearance. The condition develops, if at all, very slowly. Over several years no radiological or clinical

changes may occur. In other cases clinical signs become evident, and this is an indication for treatment. As a rule, pain is the main complaint, and this responds to rest, immobilization in a corset *plus* therapeutic doses of X rays, which not only relieve the pain, but affect the angiomatous tissue. If paraplegia is present, a decompression by laminectomy would be indicated, but such operations have sometimes been followed by death from uncontrollable hæmorrhage. Because of this difficulty, Roith performed the operation in two stages at an interval of forty-eight hours. On the first occasion the superficial surface of the lamina was carbonized by a coagulating electrode, on the second occasion the bone was excised without any bleeding, but the patient did not recover. When pain is intractable or paraplegia develops Junghans recommends laminectomy; he states that there is a 50% chance of recovery, hæmorrhage being the danger.

THOMAS KING.

A NEW OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA.

Dr. Tr. Bona: "*Neues Verfahren bei der Radikaloperation der Inguinalhernie*", *Zentralblatt für Chirurgie*, March 21, 1936.

THIS operation for the cure of inguinal hernia has been designed with a view to using unabsorbable boilable suture material, the sterility of which is undoubted.

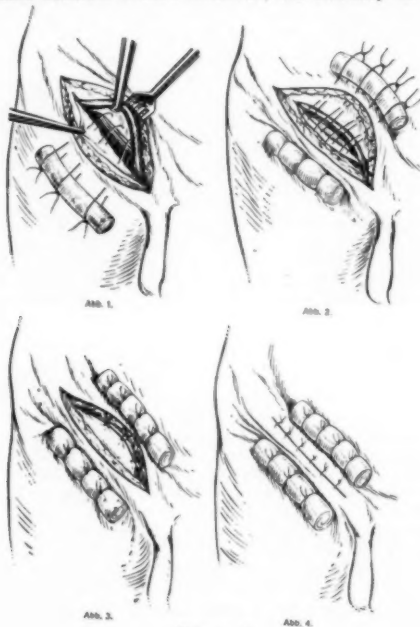


FIGURE I.

The ordinary hernial incision is made. The cord is isolated and the sac ligated in the usual way. The method of insertion of the first row of celluloid thread or of any other unabsorbable suture material is shown in Figure I. Three sutures are used, one close to the internal ring, one in the middle of the inguinal

canal and one at its lower end. Each suture is passed from the lower flap of skin through Poupart's ligament, grasps the lower edge of the internal oblique and transversalis, and is returned through Poupart's ligament and back through the skin of the lower flap. The second row of sutures is now introduced with a view to uniting, in front of the cord, the external oblique flaps. Each of these sutures traverses the skin of the upper flap, grasps the edge of the lower flap of the external oblique, then a part of the upper flap of the external oblique about three-quarters of an inch above its edge, and finally back through the skin, the object of this method of insertion being to imbricate the external oblique flaps. Each of these rows of sutures is tied over gauze rolls, as shown in the figures. The skin is closed in the usual way.

H. B. DEVINE.

BASIC PRINCIPLES IN HARE-LIP OPERATIONS.

Victor Veau: "*Grundsätzliche Richtlinien für Hasenschartenoperationen*", *Der Chirurg*, January 1, 1936, page 1.

It is not enough, Veau holds, to close a gap in hare-lip operations; a normal appearance must be accurately reproduced. The defect is purely local, and it should be remediable by surgical principles, which must be studied until perfection is reached. Surgeons must not be content, in criticizing their results, with comparing the child after operation with what he was before. They must compare him with a normal child. No method depending on force will achieve results. Osteotomies and flaps under tension must be abandoned. The best procedure will always be that which most closely approximates the normal embryological development.

If the lip only is split, there are two points to consider. One is the forward spring of the upper lip, and the other the "cupid's bow". The first depends on accurate reformation of the muscle ring by good suture of the *orbicularis oris* muscle. This muscle suture should not include skin. If the sutures cut through a scar is left, while if the sutures are taken out early the muscle is not strongly enough joined. The muscle suture must remain in place for eight days at least. It may include the mucous membrane of the under surface of the lip, in which a scar does not matter. In reconstructing the "cupid's bow" one must remember that only in the outer segment is really useful muscle present. It is a developmentally faulty act to cut the outer margin and to bring it in an unnatural flap over the inner margin. The operation consists in: (i) a correctly planned incision and exposure of the muscle; (ii) bringing the margin of the affected nostril inwards to the mid-line by a suture which passes through the lip and the septum; (iii) the insertion of a wire suture embracing the edge of the *orbicularis* on both sides of the cleft, and emerging on the deep aspect of the lip; and (iv) careful suture of the skin and mucous membrane.

The technique is more complicated when the split is complete and involves the gum, for the nasal deformity is extremely difficult to repair so as to give symmetry. The septum is much deflected towards the cleft, but in Veau's experience this is not a main cause of the difficulty. It rests much more on the relative positions of the anterior ends of the dental ridges, the one on the outer side of the cleft being considerably posterior to the one on the inner side. For true correction of the nasal deformity the elongation of the outer ridge is essential, and this is achieved by manipulation of the soft tissues. The steps of the operation are as follows. After properly planned incisions have been made along the muco-cutaneous line of the two segments of lip, the outer gingivo-labial fold is incised, and the surface of the dental process is stripped of its mucosa. At the inner edge of it, a raspator is pushed well back through the incision, the bone edge being freed on the outer side of the cleft. A cleft in the palate is closed by flaps from the cleft side of the septum, and from the palate on the outer side. The mucous membrane of the lip is separated from the muscle underlying it well out towards the nasal margin, and here the skin must be freely separated from its deep connexions. This is a very important

step in the operation, enabling the muscles and tissues of the outer segment to be brought across the gap. A deep suture brings the angle of the nostril inwards, as in the simple lip repair; the suture is left to be tied later. The gum defect must now be repaired. The planes of tissue are deeply dissected, strong adhesions in front of the cartilage of the septum being cut through. From the septum itself the soft tissues are easily separated, and this must be done very high up. The floor of the nose is then repaired, the first stitch being as far back as possible. The *orbicularis oris* is brought together with a wire suture similar to that for simple lip repair, and the remainder of the operation is as for the lesser operation.

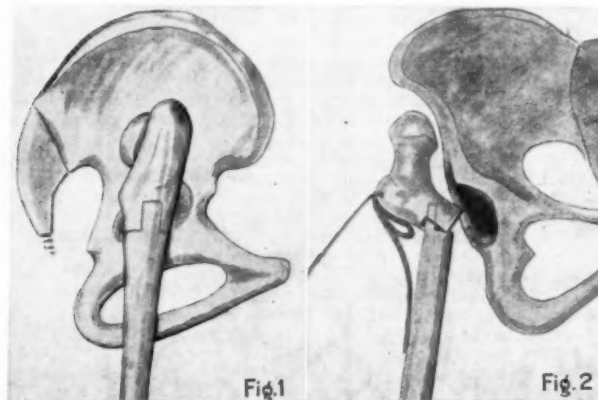
The whole article is illustrated by 61 diagrams and photographs, which must be closely studied to understand the technique fully. Veau ends by emphasizing the especially delicate nature of the work, which should not be undertaken except by those who have trained themselves to think in half-millimetres.

ARTHUR E. BROWN.

CONGENITAL DISLOCATION OF THE HIP.

M. Camera, Turin: "*Ma dernière technique dans la bifurcation de l'extrémité fémorale luxée*", *Revue d'orthopédie et de chirurgie de l'appareil moteur*, November, 1935, page 738.

The author points out that in the well-known Lorenz bifurcation operation for congenital dislocation of the hip joint it is essential to place and to maintain the sharp end of the shaft of the femur in the acetabulum. This cannot be achieved unless permanent abduction of the shaft of 45° to 60° to the upper



adducted fragment is obtained. This, however, has a harmful influence on the statics of the vertebral column and the pelvic tilt, and places a strain on the knee and ankle joints so that a limp always remains. He recommends that the self-locking osteotomy of Mommensen-Tavernier be used (Figures 1 and 2). A rectangular groove is cut into the proximal fragment and a rectangular tongue (or, rather, a tooth) in the shaft fragment, which is then forced solidly into the medullary canal of the former (Figure 1). In order to obtain the adduction of the upper fragment, which, of course, is absolutely essential, traction is exerted on the great trochanter with a strong Langenbeck hook which tilts the cut surface of the proximal fragment so that it points into the acetabulum. In order to avoid a redisplacement of this adduction tilt of the trochanteric fragment

the author strips off the *vastus externus* aponeurotic origin from the bone (see Figure 2). The limb is then immobilized in a plaster of Paris spica.

Finally, in order to equalize the limbs, the author shortens the unaffected femur (Figure 3). He has used the method in seventy cases. This operation



appears to eliminate the not infrequent difficulty of preventing slipping and displacement of the two divided fragments following any subtrochanteric osteotomy.

THOMAS KING.

SYMPATHETIC OPHTHALMIA.

Dr. Béla Waldmann: "Concerning the Circumstances that Relate to the Appearance of Sympathetic Ophthalmia and the Lessons they Teach", *Archiv für Augenheilkunde*, December, 1935, page 441.

In 1933 Waldmann expressed the opinion that sympathetic ophthalmia was a disease of ectogenous origin, and that the exciting cause spread from the nasal accessory sinuses via the *pia mater* of the optic or the ciliary nerves to the other eye. He produced statistics in support of this theory. They concerned 69 cases, mainly from Professor E. von Grosz's clinic. Of these, 53 developed during the "grippe" months of October to April, and only 16 in the warm months, when influenza is less common.

In this paper the report of answers to a *questionnaire* to various clinics in other countries is included. Only ten replies were received, and they concerned 124 cases observed during the last ten years. It is of interest to note that the average incidence in large eye departments is one case among every 10,000 new patients. Professor Porter, of New Orleans, had seen no case in the previous ten years, that is, amongst 34,251 out-patients. When the cases reported as a result of the *questionnaire* are added to those of 1933 the total is 193; of these,

75% developed during the months October to April. In Professor Meller's clinic the percentage was 86.

Iritis serosa, an inflammation following cataract extractions, shows a similar seasonal variation. Of Waldmann's ten cases, and of 15 reported by Schieck, none occurred between May and September. It is of interest to recall that the cold months have since very early days been considered unfavourable for cataract extractions in India, Arabia and the East Indies and for several hundred years in Hungary. Eversbusch described swelling of the side of the nose corresponding to the injured eye when sympathetic ophthalmia was about to develop. Other relevant statements are included by the author.

Of the cases of sympathetic ophthalmia, 40% developed after cataract extraction. This and the development of *iritis serosa* are most common in the presence of soft lens matter. The appearance of headaches, of vomiting and of ear noises *et cetera*, may be associated with the development of these ocular diseases. Optic neuritis and a "serous retinitis" are common findings. Their development is not necessarily a proof that the infection spreads along the sheath of the optic nerve.

The value of preventive enucleation was brought out by a report from Berlin. Of 12 eyes which appeared to have no sign of sympathetic involvement at the time of enucleation, four showed typical signs of sympathetic inflammation in the excised eye.

In another clinic three instances of "sympathetic" inflammation appeared at intervals of thirteen, twenty-one and thirty-eight days after evisceration. The author considers that such an occurrence depends on the incompleteness of the evisceration, a portion of uvea remaining and forming a nidus for the organism concerned.

FÜLLER'S PROSTATECTOMY.

V. Richer, Lyons: "*La prostatectomie de Füller, indications, technique, résultats*", *Journal d'Urologie*, January, 1936, page 5.

FÜLLER, of New York, published in 1895 his technique for suprapubic prostatectomy, and Richer is now bringing this operation again to the notice of surgeons, claiming that it gives better results than does any technique of the present day. For some years he has adopted Füller's technique exclusively in all cases requiring prostatectomy, using one or two stages as the ordinary indications direct. It provides good drainage in infected cases, and is striking in its rapidity of healing.

The patient lies in a modified Trendelenburg position, with the legs wide apart, and the penis and scrotum are drawn to the right, the scrotum being clipped to the skin of Scarpa's triangle on the right side. Towels are arranged to leave the operation field from the umbilicus to the perineum as one field, from which the penis and scrotum and also the anus are excluded. A perineal incision is made in the left ischio-bulbar triangle, just long enough to admit the index finger of the right hand; the finger is pushed into the incision and works through the fat and fascia towards the prostate, which it need not, however, reach. Suprapubic prostatectomy is then performed, much as in Freyer's operation, and a pack is put into the cavity on a long curved forceps and held there for some minutes, while with another forceps and swab the bladder is carefully cleaned of clots. The prostatic pack is then removed, and a long curved forceps is guided down into the cavity. The left index finger is then inserted into the perineal incision, and feels the point of these forceps against the left wall of the cavity. The forceps are forced through this wall and pushed out through the perineal wound, where they pick up a drainage tube and bring it back into place in the bladder. This tube should be of about 24 to 26 gauge French, and should have two lateral openings; one of these lies in the prostatic cavity, and the other in the bladder. The tube is fastened to the edges of the perineal wound by a suture which also closes the wound. A drainage tube, 30 French gauge, is put into the bladder through the suprapubic opening also, and the wound is closed as com-

pletely as possible round it. Richer states that he has tried to do without this tube, but finds that healing is not hastened by doing so, and that there is more trouble if large clots form, as generally happens. No dressing is applied to the perineal wound, but only a dusting powder.

After the operation the patient is given drinks early. No sedative is needed or given, as pain is slight, and sedatives usually diminish the urine output. Injections of serum and ergotin are given to assist in warding off bleeding, and Richer has used "Coagulen" in the cavity, but has no decided views as to its value. Washing out of the bladder is not done unless there are clots in the tubes. Drainage is mainly by the perineal tube, and the suprapubic tube is removed early, from the third day. When bleeding ceases, the perineal tube is also removed, and is replaced temporarily by a urethral bougie. This is often on the fifth day, and the wounds are frequently quite healed by the eighth. There is never any difficulty in the healing of the perineal wound, and the suprapubic wound heals more easily the earlier it is freed of its tube.

With this method the prognosis as to life is the same as by any other method; but the rapidity of healing and the shortness of convalescence are the striking features of this technique. In four patients the wounds have been completely healed in eight days, in many between eight and twelve days. No other method or technique will give the same swift result with the same safety.

ARTHUR E. BROWN.

VESICAL CALCULUS IN SOUTH CHINA.

K. Boshamer: "*Blasenstein in Süd China*", *Zeitschrift für Urologie*, January, 1936, Volume xiii, Number 1, page 18.

BOSHAMER states that all surgeons commencing work in the central parts of South China, as well as in Indo-China and Siam, are struck by the frequency of vesical calculus in patients in the second to the fourth decades of life. Bladder stones are met there varying from the size of a cherry to that of an apple, and they may be multiple. Urethral calculus is also fairly common. On the other hand, renal and ureteric calculi fall completely into the background. Almost without exception these sufferers belong to the poorest grades of society. The especial frequency of vesical calculi in the province of Kwangsi, in which the author works, is explained, to his mind, by the fact that it is the poorest province of China. Renal calculus, on the other hand, he found only in the richest classes, and in these cases the stone is nearly always composed of urates. The diet of the poor folk consists mostly of boiled polished rice. Several dishes of this grain form the daily ration for each person. Fruit, milk, meat and vegetables are only seldom consumed, and then in very small amounts. One meal's ration of meat for a rich person in Kwangsi is nearly a quarter of a year's ration for a poor man. For soldiers during wartime, particularly during battles or on long marches, when the transport of food is difficult, rice forms the exclusive diet. Hot water (tea is only seldom available) is in such conditions the only liquid refreshment. Naturally, in such campaigns a great number of soldiers have to drop out suffering from beri-beri. Not only is vitamin B, but also vitamin A, insufficient in amount in such a diet. Other foods, being seldom obtainable and then only in small quantities, cannot make up this vitamin deficiency. The author quotes the researches of many workers in regard to the connexion between stone formation and the relative or complete absence of vitamin A from the food. The explanation of stone formation in these cases lies in the lowering of resistance to the organisms of infection, so that severe bladder inflammation arises, and desquamated epithelium forms nuclei for stone formation. It was noted, the author quotes, by Van Leersum and Pearlmann that on a diet containing no vitamin A, 24% of their experimental animals developed vesical calculi. In another group, in spite of the presence of bladder infection, no vesical calculi appeared when the rats were kept on a normal diet. The author is inclined to explain the great frequency of vesical calculi in South China along the lines

of the results of these experiments. He further found that in all his cases the operation wounds showed very poor tendency to healing if the diet was not regulated, and the bladder infection would not disappear until vitamins were added to the diet. An interesting case is quoted in this connexion. A patient was operated on three times in the course of five years for vesical calculus; each time the recurrence commenced fairly soon after operation. The surgical care undertaken elsewhere had, however, not included regulation of the diet in order that sufficient vitamins should be included. The author, after the last operation, saw to it that the patient's food every day included milk, wheat porridge, vegetables, fruit and eggs. The bladder inflammation disappeared in a very short time, and the patient has since shown no tendency to recurrence of the calculi. It is understood that neither in this case nor in any of the other cases of vesical calculi referred to in this series was there any organic obstruction to the urinary outflow. Since the occurrence of the case, which was seen by the author soon after he began work in South China, attention to the dietary has prevented recurrence of stone in patients operated on by him.

R. J. SILVERTON.

Reviews.

DISEASES OF THE PERIPHERAL ARTERIES.

The Diagnosis and Treatment of Diseases of the Peripheral Arteries. By SAUL S. SAMUELS, A.M., M.D.; 1936. London and New York: Oxford University Press. Demy 8vo, pp. 254, with 51 illustrations. Price: 12s. 6d.

DURING the past decade there has been a greatly increased interest in peripheral arterial disease. Dr. Samuels has been an enthusiastic worker in this branch of medicine and his recently published book is based on his experiences in the management of over three hundred and fifty cases of *thrombo-angiitis obliterans* and of a larger number of cases of peripheral arteriosclerosis. It is a good book, the subject matter is clearly presented and pleasantly easy to read. While discussing adequately the views of other authorities, Dr. Samuels lays the greatest stress on those methods of diagnosis and treatment which he himself has found of most value. The book is divided into ten chapters. The first chapter deals mainly with the classification of the peripheral arterial diseases. Dr. Samuels advocates the simple classification into (i) the organic obstructive diseases and (ii) the conditions of vasomotor imbalance. He agrees that there is often a vasomotor element in obstructive arterial disease, but thinks that recently there has been a tendency to over-estimate its importance. In the following chapters are discussed the symptoms and the objective findings of occlusive arterial disease in the extremities, and the use of oscillometry. These are very well written, especially the chapter on objective findings. It will be apparent that the diagnosis of occlusive arterial disease can be made almost always by simple clinical methods of examination.

The chapter on *thrombo-angiitis obliterans* is excellent, and covers history, ætiology, pathology, treatment, complications, differential diagnosis and case reports. Dr. Samuels believes that the direct cause of this disease is not yet known, but he is convinced that smoking is "an essential aggravating factor in the development of the disease"; he also stresses the fact that "persistence in the habit of smoking by these patients is one of the chief reasons for the failure of any of the various methods of therapy". The section on treatment illustrates the changed viewpoint in this disease. Dr. Samuels believes that extreme conservatism in treatment is obligatory, because these patients, properly managed, have a remarkable capacity for developing an adequate collateral circulation in the affected limb. His case reports certainly show what can be accomplished by conservative treatment in the most advanced stages of the disease. Dr. Samuels's

plan of treatment is simple and practical, and is described in such minute detail that no one should have any difficulty in carrying it out. Repeated intravenous injections of hypertonic saline solution form an important part of the treatment, and their effectiveness is stressed. The intravenous use of "T.A.B." vaccine for the relief of pain is not recommended. This has been a favoured form of therapy in other clinics. Dr. Samuels condemns operations on the sympathetic system because vasomotor changes are present to any great extent only in the early stages of the disease, when excellent results can be obtained by simpler procedures. Recent reports from other clinics show that sympathetic ganglionectomy is being done less and less often.

The differential diagnosis of peripheral arterial disease is clearly presented.

The chapter on *arteriosclerosis obliterans* is also very good. After dealing with the ætiology, pathology, symptoms and objective findings, Dr. Samuels gives a lucid and detailed account of his methods of treatment; these are simple and practical. He points out that conservative treatment, while not as successful as in *thrombo-angiitis obliterans*, often yields very gratifying results. The special problems of diabetic gangrene are stressed.

The chapters on Raynaud's disease and erythromelalgia are rather disappointing. Brief mention is made of a new syndrome—essential thrombophilia.

The last chapter on the medico-legal aspects of peripheral arterial disease is of great interest and importance.

There is a good bibliography at the end of each chapter.

We can recommend Dr. Samuels's book to all those who have to care for patients with peripheral arterial disease.

A CLINICAL JOURNAL FOR WESTERN AUSTRALIA.

Western Australian Clinical Reports. Volume I, Number 1; July, 1936 (issued twice yearly under the direction of the Honorary Staff of the Perth Hospital). Medium 8vo, pp. 96. Annual subscription, 10s. 6d.; single numbers, 6s. net.

In welcoming the first number of *Western Australian Clinical Reports*, we congratulate the editor and his collaborators on their enterprise.

Western Australian Clinical Reports is the first medical journal to be published in Western Australia, and it will undoubtedly fulfil a long felt want. This journal should become the medium for the expression of the best medical and surgical thought in our sister State. Judging from the standard of the first issue, its sponsors realize the importance of the work which lies ahead of the journal. We wish the publication every success.

GENITO-URINARY SURGERY.

Surgical Diseases and Injuries of the Genito-Urinary Organs. By SIR JOHN THOMSON-WALKER, D.L., M.B., C.M., F.R.C.S.E.; 1936. London, Sydney and Melbourne: Cassell and Company, Limited. Royal 8vo, pp. 949, with 283 illustrations. Price: 50s. net.

SURGEONS will welcome the second edition of "Surgical Diseases and Injuries of the Genito-Urinary Organs", by Sir John Thomson-Walker. Since the publication of the first edition in 1916 there have been such advances in the science of urology that it has been necessary to make considerable additions to the text. Despite this, by careful selection of the material at his disposal and by confining himself to matters of practical rather than theoretical interest, the editor (Kenneth Walker) has avoided making any great increase in the size of the book. In his task he has been fortunate in having the active help and cooperation of the author.

The arrangement of the book, as in the first edition, is based on an anatomical classification, and this renders it readily accessible for reference purposes.

The advances made in X ray examination and pyelography are adequately dealt with. New work associated with prostatic enlargement, renal tuberculosis and bladder tumours has necessitated the rewriting of these chapters. Though the increased popularity of the Harris operation is recognized, the opinion expressed is: "This operation is still on trial, but the results have been encouraging in good risk subjects." With regard to the vexed question of tuberculous bacilluria, the view taken is that the condition might occur in cases of pulmonary tuberculosis without a tuberculous lesion of the kidneys being present. But, when pus is present, even in microscopic amount, it is proof that there is a tuberculous lesion; where it is absent and closed tuberculosis can be excluded, there is no surgical tuberculous lesion of the kidney. Insertion of radon seeds through an operating cystoscope is recommended as the most satisfactory form of treatment in inoperable malignant disease of the bladder. Because of difficulties in technique and the risk of calculous formation, many surgeons would favour open diathermy combined with the insertion of radium needles and suprapubic drainage.

New chapters have been added on renal function tests, transurethral operations, obstruction at the bladder neck, impotence and sterility. The chapter on perurethral prostatic resection is excellently done by Kenneth Walker. He points out that it should be realized that the perurethral approach is not a general substitute for prostatectomy, but is rather a method of treatment applicable to special types of cases or to special circumstances. He believes that about 25% of patients with prostatic obstruction may be found suitable for this form of treatment. The X ray plates are well reproduced, and nearly three hundred illustrations are incorporated in the text.

This book maintains the standard set by the author in the first edition, and is characterized by sound and logical teaching. It may well be described as the standard textbook of British urology, and no one interested in genito-urinary surgery can afford to be without it.

ORTHOPÆDIC SURGERY.

Orthopædic Surgery. By W. MERCER, M.B., Ch.B., F.R.C.S., F.R.S.; Second Edition; 1936. London: Edward Arnold and Company. Royal 8vo, pp. 917, with illustrations. Price: 40s. net.

"ORTHOPÆDIC SURGERY", by Walter Mercer, is a short, concise handbook. It is well printed and illustrated. The subject matter is, on the whole, well arranged and satisfactorily indexed, and at the end of the book there is a comprehensive bibliography.

Written by a general surgeon, who follows the Edinburgh tradition that all specialists must be general surgeons and, presumably, all general surgeons specialists, the book reflects, as indeed its author intends it should, the general surgeon's outlook.

Those subjects which by common consent lie on the borderland between the general surgical and the specialist domains, bulk largely in the book, and are adequately dealt with; but there is a tendency to stress them at the expense of the more intrinsic orthopædic aspects of the work. Nine pages are devoted to dealing with the subject of cervical rib and the recently described *scalenus anticus* syndrome, and there is a section on acute infection of the hand, but the fact that the human foot is subject to other congenital deformities besides *talipes equino-varus* is not even mentioned.

Rather much stress is laid on the operative side of treatment, and the important part played by carefully planned physical therapy and occupational therapy in the restoration of function is missed. The subject of muscle training is given nineteen lines, and indicates a suggested definition or description of muscle reeducation with which no experienced orthopædic surgeon would agree and which would mislead any neophyte. The trained orthopædic surgeon will

note the absence of stress on the goal of function in treatment which he has learned to look upon as his lodestar.

A few words on the method of using a Thomas wrench, of measuring for and fitting a Thomas bed knee splint and a Thomas caliper, according to ordinarily accepted standards, are certainly needed in a work of this sort, which is written presumably especially for Edinburgh students and graduates. Mr. Mercer's method of using a Thomas caliper in the treatment of the convalescent stage of tuberculous disease of the hip and knee will not commend itself to orthopaedic surgeons; it sounds clumsy, and the use of pattens as described must add considerably to the discomforts and difficulties of convalescence.

The chapter on affections of the foot is written along conventional lines, and the pleasure of finding a short description on *metatarsus primus varus*, and a recognition of its influence in the aetiology of *hallux valgus*, is somewhat tempered by the failure of the author to take any note of this factor in his description of the operative treatment of *hallux valgus* or to mention Truslow's important paper on the subject. In any further edition of this work it would be well to specify exactly the position of the *os intermetatarsaeum*; in the present work the matter is left in some doubt. Another aberration in anatomical description that needs correction is the statement to be found in the description of Sever's operation for the correction of the deformity following obstetric palsy, that the tendon of the subscapularis swings round the head of the humerus to the great tuberosity.

Every writer of a work on surgery should realize that his book is likely to be quoted authoritatively in medical legal actions, particularly in those dealing with fractures. In this connexion the statement that in its early stages delayed union of fractures requires no active treatment, and the recommendation to use a Jones humerus traction splint after step-cut operations on the humerus, are not likely to meet with general acceptance.

These are some of the shortcomings in the work which contains many good features. A well written chapter on general affections of the skeleton includes a short but valuable description of the reticulo-endothelial disturbance of bone, which, whilst it is of more general surgical interest, will prove of value to orthopaedic surgeons. There is a good chapter on affections of bones and another on circulatory disturbances of the extremities.

This is a book which cannot be recommended to students and general practitioners, or even to general surgeons who may wish to study or practise orthopaedic surgery. It will be of value to the trained orthopaedic surgeon for its revision of the general surgical aspects of his work; and, if it produces in him the chastening thought that few, if any, of his kind could write a work of corresponding merit on general surgery, it will also have done good work.

NASAL ALLERGY.

Allergy of the Nose and Paranasal Sinuses. By F. K. HANSEL, M.D., M.S.; 1936. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. Super royal 8vo, pp. 820, with illustrations. Price: 63s. net.

THIS book by Professor Hansel is a most comprehensive and exhaustive survey of a difficult and complicated subject.

Everything appertaining to allergy has been fully examined and discussed. The references to literature are beyond expectation. For instance, at the end of the eighth chapter they number 232, and in other chapters over 100 references are not uncommon.

The subject of allergy is one which is gaining increasing prominence in the medical literature not only of specialists, but of the general practitioner. There is reason to think that the nose and throat are the sites of allergic manifestations rather more frequently than has been hitherto appreciated. Perhaps

increasing knowledge of the condition will lead to important modifications of treatment. Although this book is addressed more particularly to specialists in diseases of the nose and throat, this by no means represents its purview. Very informative chapters on hay fever, asthma and gastro-intestinal conditions are included.

We earnestly recommend this book to specialists and indeed to all interested in allergy who feel that they would like to have a complete presentation of the subject in the light of present knowledge. The author does not give his own views to any great extent, but leaves the reader to make his own deductions from the enormous wealth of material presented. The book is beautifully bound and illustrated.

FASCIÆ OF THE BODY.

Fasciæ of the Human Body and Their Relations to the Organs They Envelop.

By EDWARD SINGER, M.D.; 1935. Baltimore: The Williams and Wilkins Company. Crown 4to, pp. 116, with 24 plates. Price: 13s. 6d. net.

IN a very well produced book Dr. Singer, of the Department of Anatomy of Columbia University, has described the fasciæ of the body. While we agree that these play an important part in surgery, the student should be taught that under pathological conditions the anatomy may be altered. We are unaware of the work referred to in the preface regarding the anthropological significance of the fasciæ. The author states that "a special method of dissection was employed". No description of this method is given, nor is it stated how many specimens were dissected.

The account of the fasciæ of the limbs is good, but that of the neck and face is open to question. The pelvic fascia is dealt with very perfunctorily, and the incorrect labelling of the *obturator internus* muscle in Plate 18 confuses this subject still more. The coverings of the testicle are described in elaborate detail, but we believe the description to be inaccurate. The references are scanty and do not include any to the work of Poirier.

A TEXTBOOK OF SURGERY.

A Text Book of Surgery by American Authors. Edited by FREDERICK CHRISTOPHER, B.S., M.D., F.A.C.S.; 1936. Philadelphia: W. B. Saunders and Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. Royal 8vo, pp. 1,608, with 1,349 illustrations. Price: 63s. net.

THE editor of this textbook of surgery has set out with the idea of collecting all the recognized authorities on special subjects, no matter how small that subject may be; and how well he has succeeded is seen by glancing at the list of over 180 contributors, which contains the names of most of America's leading surgeons.

This system has many advantages, in that all the material in the book is absolutely modern, many of the references being to articles appearing in 1935, and is definitely the view of a person experienced in his particular subject. There is a pleasing absence of obsolete but time-honoured treatments and theories which continue to appear in some textbooks.

One of the defects is the inevitable unevenness of the articles, some being written almost for the specialist, while others seem to be for the undergraduate. The editor has carefully managed to prevent redundancy, which is a fault usually found in this type of book.

It is almost invidious to pick out special articles from such a collection, but Smith-Petersen's account of pain in the back is extremely practical and a subject which is not usually well treated.

Most of the section on fractures and orthopædics is very good, and includes a very fair presentation of the operative treatment of fractures. Geschickter's contribution on tumours of bone is authoritative and concise, although he gives a more optimistic prognosis than most surgeons would be prepared to give.

The section on ductless glands, particularly the thyroid, accords with Australian teaching, but naturally includes Plummer's classification in preference to Dunhill's views. The names of Koch, Mason and Bunnell are sufficient to indicate the high standard of the article on infections and tenoplasties of the hand.

Peripheral vascular disease by Holman gives all the latest advances in treatment, and is much more fully treated than in most books.

The surgery of the sympathetic nervous system is excellent, particularly because of its conservative tendency, which is most advisable in a textbook of this kind when dealing with a subject as incompletely understood as is this system.

The surgery of the chest, with its indications, contraindications and complications, is well handled.

Hertzler has written the section on peritonitis in his usual racy style; and Wangenstein writes on intestinal obstruction, giving a *résumé* of present-day views on its physiology and treatment.

The section on the gastro-intestinal tract includes articles by Balfour, Rankin and Whipple, which are very sound.

The genito-urinary section gives slightly undue prominence to strictures and kinks of the ureter, which are apparently much more commonly encountered in America than in Australia. Failure to mention the Harris technique in prostatectomy is one of the few serious omissions in the book. It is also interesting to see that only mild support is given to transurethral resection.

It is impossible to mention all the good things in this book; not least among them are the illustrations, many being line drawings which save much description.

The book can be thoroughly recommended, and the editor, Christopher, is to be congratulated on having produced an authoritative account of modern American surgery.

BONE TUMOURS.

Tumors of Bone (Including the Jaws and Joints). By C. F. GESCHICKTER, M.D., and M. M. COPELAND, M.D.; revised edition; 1936. New York City: *The American Journal of Cancer*. Super royal 8vo, pp. 832, with 525 illustrations. Price: 42s. net.

THIS book is a revised edition of that published in 1931. Part of it has been rewritten, and considerable additions, including follow-up reports, have been made. It is an excellent volume for reference, and will be found of great assistance to surgeons and especially to radiologists. Forewords on the interpretation of clinical findings and on the rules for diagnostic and therapeutic procedure in bone lesions are given by Dean Lewis and the late J. C. Bloodgood respectively.

A great deal of information is contained in the various sections, and in most of them there is an interesting and valuable historical introduction. The descriptions of the gross, microscopic and radiological appearances are clear and concise.

The text is well set out and the style is easy. The print is very clear and on good art paper. The illustrations, particularly the photographs of gross specimens and the reproductions of skiagrams, are very good. Excellent diagrams showing tumour distribution will be found to be most useful. There is a good index.

The term tumour is obviously used throughout the text in the purely clinical and not in the pathological sense, and important sections of the book deal with cysts, exostoses *et cetera*. Ganglion is described as a "cystic tumor".

The paucity of references to the literature is disappointing, for, though the book is intended to be a review of cases examined by the authors, we feel that

many problems raised in recent literature could be illuminated by the writers from their undoubtedly large experience. The illustrations of microscopic sections are also disappointing in many cases; despite their superficially striking appearance, detail valuable to a pathologist has been lost. There are occasional errors, for example, on page 69 the cross reference to page 713 should be to 717.

On the whole, the book is a good one, and should be read by all those interested in bone tumours.

PRACTICAL SURGERY.

A Short Practice of Surgery. By H. BAILEY, F.R.C.S., and R. J. McNEILL LOVE, M.S., F.R.C.S.; Third Edition; 1936. London: H. K. Lewis and Company, Limited. Demy 8vo, pp. 1004, with 763 illustrations, of which 88 are coloured. Price: 28s. net.

The third edition of "A Short Practice of Surgery", by Hamilton Bailey and R. J. McNeill Love, has been published. That, since 1932, when the book was first published, three editions should have been required, shows that this work—a concise survey of general surgery—has filled a want, and is a popular work with those for whom it is intended, namely, surgeons, general practitioners and students. The authors have spared no efforts to bring the book up to date. Additions have been made to nearly every chapter. Many new illustrations have been added. For the student, this is a very easy book to read, for it is written so simply and, as it were, from actual practice. There is hardly a wasted word in the book, and although most of the subjects are treated very succinctly, it is difficult to find anything of importance that is not included. The fact that a work such as this is being kept constantly up to date by the publication of fresh editions, is of great importance to the student. There is no doubt that this book is essential for the student of surgery, not alone to impress on him the basic principles and essential facts in surgery, but as an aid to give him perspective in his wider reading of surgical literature.

AN OLD REMEDY REVIVED.

Narrative of an Investigation Concerning an Ancient Medicinal Remedy and its Modern Utilities: The *Symphytum Officinale* and its Contained Allantoin. By C. J. MACALISTER; 1936. John Bale, Sons and Danielsson, Limited. Crown 8vo, pp. 60. Price: 2s. 6d. net.

In his booklet, entitled "Narrative of an Investigation Concerning an Ancient Medicinal Remedy and its Modern Utilities", Dr. Charles J. Macalister gives an account of some experiments carried out by him on the treatment of ulcers, both benign and malignant, with an old herbal remedy Comfrey, or, to give it its scientific name, *Symphytum officinale*.

Comfrey has been used since time immemorial to hasten the healing of wounds. It contains a large percentage of mucilage, of which, as Pliny tells us, "the roots be so glutinate that they will solder or glew together meat that is chopt in pieces, seething in a pot, and make it into one lump". Comfrey crushed had a great vogue, being applied as a poultice to broken bones, the union of which it was said to hasten.

Dr. Macalister was led to investigate the medicinal virtues of Comfrey by reading the account of a case of tumour of the nose and antrum reported in *The Lancet* of 1896 by Professor William Thompson, then President of the Royal College of Surgeons, Ireland. The growth recurred after operation, and was looked upon as inoperable. The man was sent home as incurable, and in three months returned without any sign of the growth, and stated that he had applied poultices of Comfrey. After the first operation the growth was diagnosed by a leading pathologist as a round-celled sarcoma.

Macalister's experiments, carried out at first with a strong infusion of the root in a case of rodent ulcer, were so promising that he asked Dr. Titherley, the Lecturer on Organic Chemistry at the University of Liverpool, to isolate the active principle of the Comfrey. This investigation resulted in the isolation of an unidentified crystalline body closely resembling allantoin. Some allantoin prepared from uric acid was then used, and proved to be a stimulant of cell proliferation. This substance, which is present in the allantois in fetal life, is said to have a great influence on the growth of the fetus. In the Comfrey rhizome the amount of allantoin is also greatest at the time of greatest growth.

Macalister describes interesting experiments on plants which he treated by injecting solution of allantoin into the roots and stems, with remarkable effects on the growth of the plants. His clinical observations on the effects of solutions of allantoin on the healing of ulcers in paralytic and diabetic cases are worthy of attention, and the results in the treatment of burns are striking. Again, in gastric and intestinal ulceration the administration of the mucilaginous infusion of Comfrey root, reinforced with some of the saturated solution of allantoin, is said to have given great relief. In the treatment of malignant conditions, the results, while interesting and deserving further study, were inconclusive.

The administration of allantoin in febrile conditions was found greatly to increase leucocytosis, and the polynuclear cells showed an increase of from 5% to 15%, and this fact was made use of in the treatment of pneumonia with benefit and an early crisis.

An interesting observation comes from America in regard to allantoin. The benefits of the application of the maggots of certain flies in the treatment of wounds is in part due to the allantoin given off by the maggots. As a result of this observation, some surgeons are replacing the use of maggots by the application of allantoin solution.

This little book opens up quite a large and promising field for investigation amongst the old herbal remedies which have been overlooked and buried in the flood of chemical synthetic remedies with which the modern surgeon is inundated. Perhaps the "wonderful tales of the herbs of our fathers of old", of which Kipling sang, may prove as true as they are wonderful, and help to solve some of our modern problems of treatment.

Notices.

PRIMARY FELLOWSHIP EXAMINATION OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Council of the College wishes to announce that a primary examination in anatomy and physiology will be held during November-December, 1937, in Melbourne, Sydney and Dunedin, under the following conditions:

The papers will be written simultaneously in all three centres, beginning on Monday, November 29, 1937, and the *viva voce* part of the examination will begin in Melbourne during the same week; in Sydney during the week following that in which the papers are written; in Dunedin during the second or third week after the written papers.

The result will be announced at the termination of the examination in each centre.

The examination is open to candidates who are graduates or undergraduates of the medical faculty of any university recognized by the Royal College of Surgeons of England, and who comply with the conditions of the regulations. (The recognized universities in Australasia are the Universities of Adelaide, Melbourne, Sydney and Dunedin.)

Copies of the regulations, forms of application for admission to the examination, and the schedule of the certificates required may be obtained, free of charge, from the Secretary, the Royal Australasian College of Surgeons, Spring Street, Melbourne, C.I.

Completed forms of application, together with the certificates required by the regulations, must reach the Secretary of the Royal Australasian College of Surgeons not later than Saturday, July 31, 1937.

The fee for admission to the examination, or reexamination, is £25 sterling, which must be paid to the Secretary of the Royal Australasian College of Surgeons not later than Monday, November 1, 1937.

Candidates who withdraw from the examination, owing to any cause whatsoever, after they have paid their fees will be refunded half the amount of the fee which they have paid.

All inquiries concerning the examination to be addressed to the Secretary, the Royal Australasian College of Surgeons, Spring Street, Melbourne, C.I.

THE BRITISH POST-GRADUATE MEDICAL SCHOOL.

THE College wishes to draw attention to the announcement of the British Post-Graduate Medical School on page xxx of the advertisements.

NEW DEVELOPMENTS IN SURGICAL EQUIPMENT.

THE attention of Fellows is drawn to pages xviii and xxvi among the advertisements, which illustrate some recent developments in surgical equipment. The Editorial Committee is responsible for the selection of the equipment illustrated thereon. The publishers will be pleased, whenever possible, to supply the names and addresses of the manufacturers to anyone requiring such information.

Editorial Notices.

EDITORIAL communications should be addressed to the Chairman of the Editorial Committee, 57 Collins Street, Melbourne, or to any member of the Editorial Committee. It is understood that original articles forwarded for publication are offered to THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY solely, unless the contrary be stated.

Reprints can be supplied at cost price; the minimum number is fifty copies. Orders for reprints must be given when the proof is returned.

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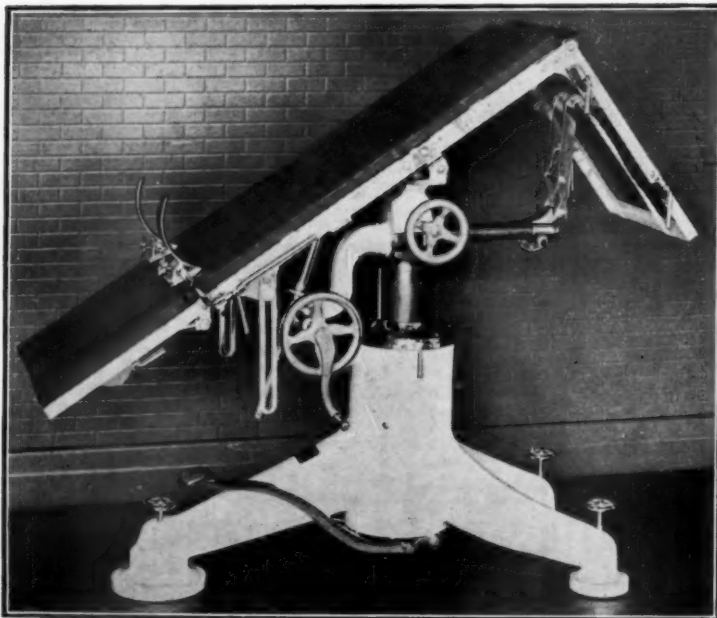
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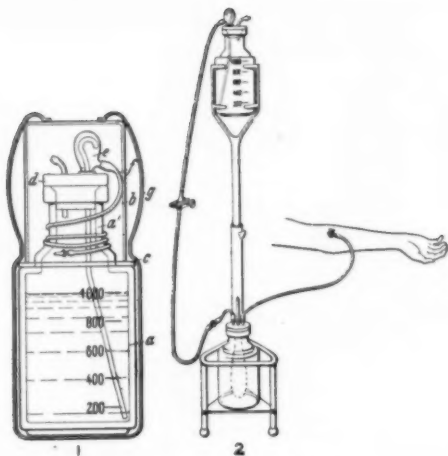
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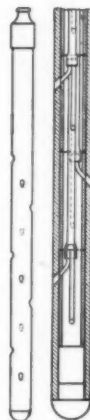
(*Der Chirurg*, August 15, 1936, page 673.)

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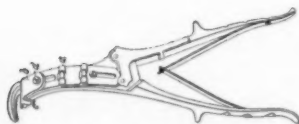
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(*Der Chirurg*, August 1, 1936, page 635.)

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(*Der Chirurg*, September 5, 1936, page 756.)

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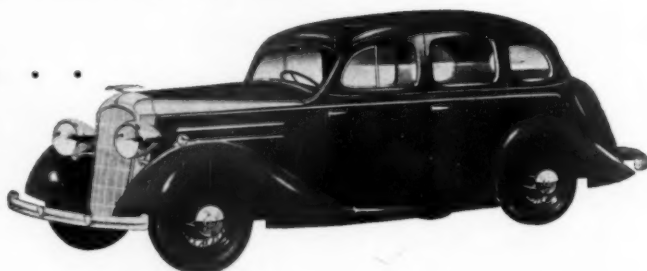
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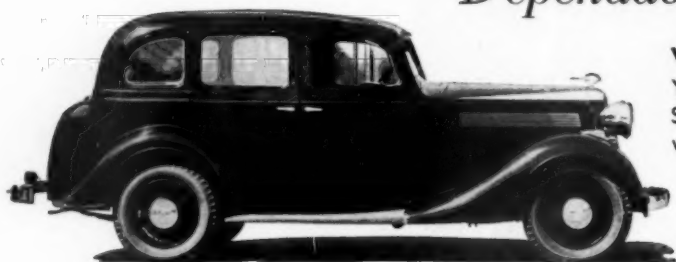
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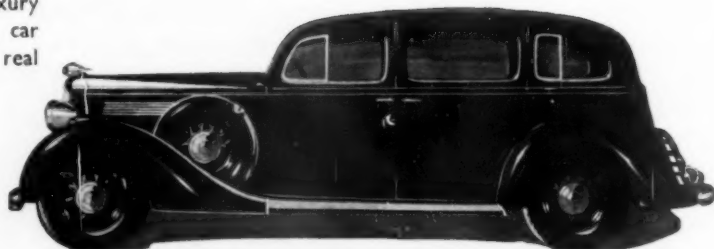


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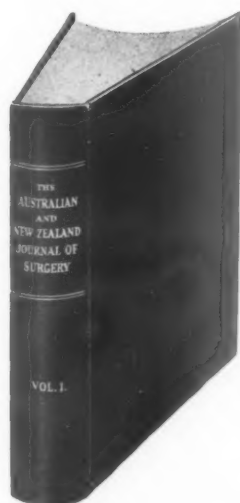
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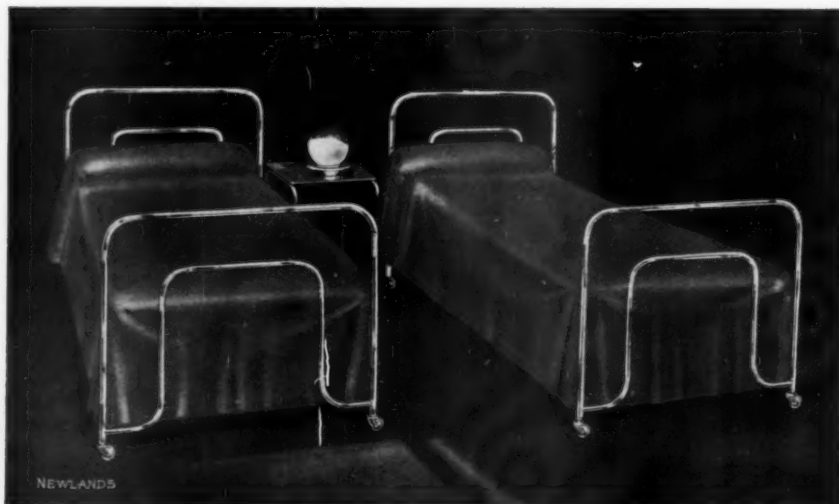
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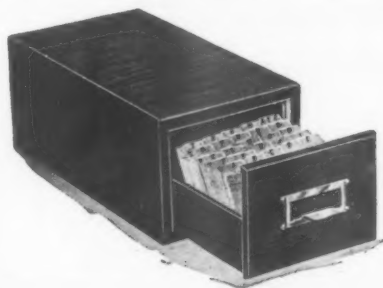
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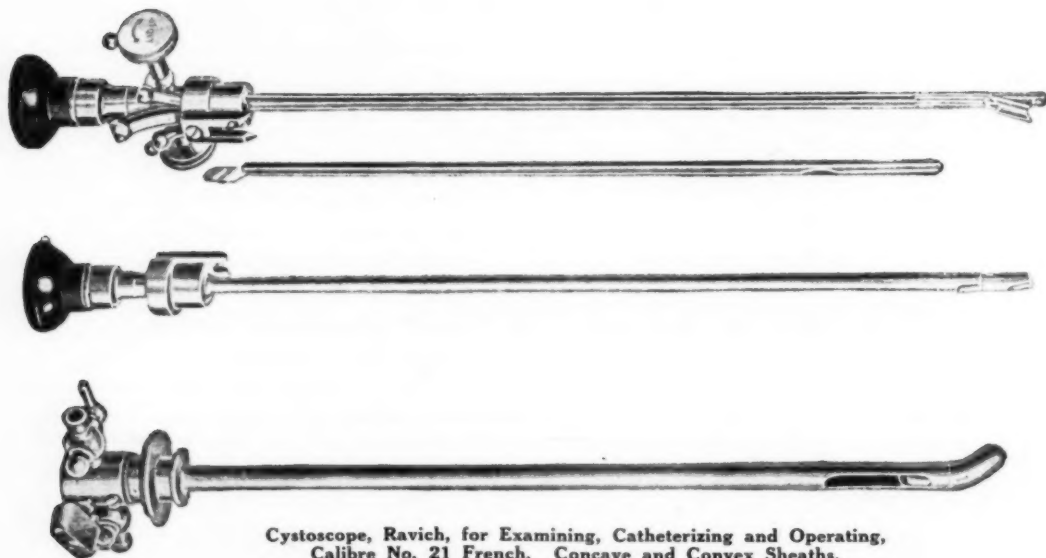
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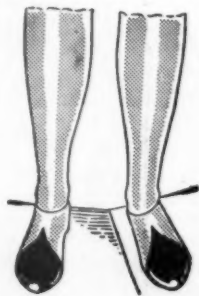
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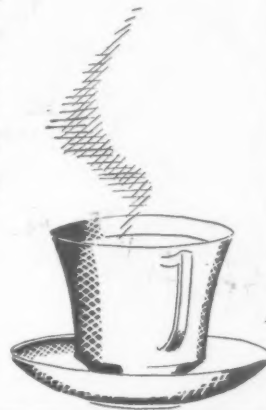
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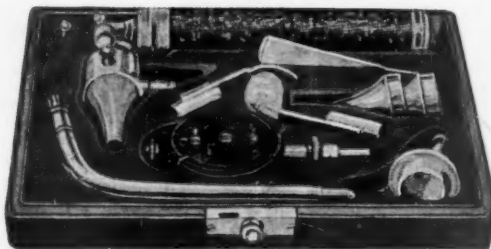
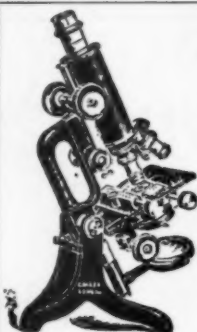
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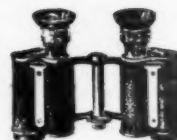
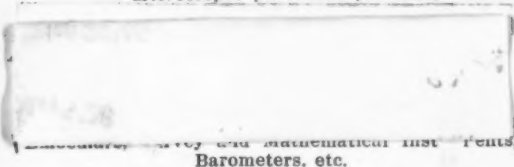
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